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BRITISH MEDICAL JOURNAL

LONDON SATURDAY FEBRUARY 3 1945

THE CLINICAL CHARACTERS OF PAIN*

BY

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Pain has been defined as a specific feeling that protects from noxious stimuli. Pain is, however, not a single feeling. It is rather a group of distinct feelings, each of which has clinical characters of its own. Thus pain of the skin is different from pain of the muscles. Each type is related to a definite group of tissues. Examination of this relation is of theoretical and diagnostic interest.

Severity

The general level of severity of a pain can be influenced so much by the patient's personality and surroundings that no reliable conclusions can be reached from its study. The examination of the relative sensitivity of tissues is more useful. Not all tissues are equally sensitive. Some, like the cornea, are exposed to injury, and yet the effects can be serious even though the injury be slight. These tissues, as may be expected, have a high degree of sensitivity; but the sensitivity of ordinary tissues is much lower. It would be very inconvenient if the sensitivity of all tissues were high. When the injury is so mild as not to be of any consequence it does not reach consciousness. On the other hand, if the stimulus, even though mild, persists too long or if the tissue is still suffering from the after-effects of a previous injury, further damage of any degree can be dangerous and the threshold of pain is then lowered. The sensitivity of a tissue is not a constant, but a variable that changes with the previous history of the injured tissue.

Thus if the skin is damaged in any way there develops after a short interval a diffuse area of tenderness which surrounds the site of injury. This area is hypersensitive to stimuli of heat, cold, pressure, etc., that from their degree would not normally be enough to produce pain. This hypersensitivity is limited specifically to the organs of pain; for example, the organs of touch are not affected, as can be tested by Frey's hairs. The central mechanism of this hyperalgesia is ultimately segmental, but the nerve distribution within the skin is such that the area of tenderness around the site of injury follows a geometrical, not a segmental pattern, being concentrical around the injured spot. It is never referred to a distance.

In the deeper tissues hyperalgesia occurs also. When 2 c.cm. of a 6% hypertonic saline solution was injected deep in my biceps muscle, after five to six minutes there appeared definite tenderness even on slight pressure over the site of injection. After an interval the tenderness was more diffuse and was felt over a large part of the posterior aspect of the arm. The tenderness was not equally marked everywhere. Over the injury it was easy to elicit and to locate; at some distance it was present as hypersensitive spots which kept changing their place from time to time, especially after active exercise. These spots were not easily located, and were vaguely circumscribed. Active exercise of the arm re-exacerbated the tenderness when it had become milder after rest.

Similar tenderness is met with in numerous clinical conditions, and its presence in a diffuse form may mislead as to the real site of injury. It has the same distribution as with deep pain, it has not a geometrical but a segmental pattern, and can even be referred to a distance. Thus deep tenderness in diaphragmatic pleurisy may accompany pain over the neck and shoulder.

Power of Discrimination

The tracing of the curve of a pain's intensity against time is called the curve of time-intensity of that pain. The type of curve is influenced by the activity of the stimulus, but depends upon the properties of the injured tissue. In fact, the same stimulus applied in the same manner produces different curves in different tissues.

When 0.5 c.cm. of a 6% hypertonic saline solution was injected intradermally into my forearm it caused pain that was felt very early and rose very rapidly to its maximal intensity. When an equal amount of the same solution was injected into my triceps muscle the pain took some seconds to appear and some seconds more to become maximal. Again, when a pin-point is applied to the cutaneous surface the pain is immediate and maximal from the very start; it fluctuates in intensity with the variations in pressure of the pin, and disappears as soon as the pin is taken away. When, however, the skin and the subcutaneous tissue of a zone over the triceps muscle were anaesthetized by 2% novocain solution and a needle was inserted through this area into the triceps, the pain was not immediate. It took several seconds to appear; it increased slowly in intensity, did not fluctuate with the movements of the needle within the muscle, and persisted long after the needle had been removed. While skin pain portrays in its intensity curve the activity of the stimulus, muscle pain is not a faithful index of this activity, and is in this sense non-discriminative.

In the deep tissues discrimination is also defective in the power to distinguish as separate two distinct stimuli. When the overlying skin was anaesthetized two separate injections of 0.5 c.cm. 6% saline into my triceps, four inches apart, were not felt as distinct sources of pain. This was noticed whether the injections were given simultaneously or at an interval of 30 seconds from each other. With two injections the distribution of pain was somewhat different from that with a single injection; but the pain from either injection was so diffuse and its distribution overlapped so much in the area of distribution of the other pain that it was impossible, even with an effort of will, to detect two separate foci.

Power to Locate.—The power to locate the site of the injury from the pain that is felt depends upon the type of tissue injured. It is perfect on the cutaneous surface, but gets progressively more defective the deeper the tissue, as will be discussed later on.

Quality

Quality is the distinctive character of a sensation; but it is a character that cannot be described. We can, for example, say what physical stimulus carries the feeling of green vision or which objects look green, but we cannot describe green itself. Similarly with pain. We can say which stimuli cause a certain type of pain or we can compare it with another familiar pain, but we cannot describe the pain itself (Lewis, 1938). We use as terms of comparison a familiar pain which is related to some part of the body, as when we say that the pain feels like a tummy-ache; or we compare pain with

* From a paper read in 1943 to the Malta (Over-seas) Branch of the British Medical Association

that which is related to a function, as when a mother compares her pain to a labour pain. Much more commonly we make comparison with a pain that is provoked by a familiar stimulus, as when we call a pain "burning" because the same type of pain is produced by a burn. This is reflected in our terminology of pain (Lewis, 1938).

This common method of comparison based on the stimulus too often conveys the false impression that the characters of a pain are a function of the stimulus. If the quality of a pain were a function of the stimulus we could not explain why the same stimulus applied in the same manner should give pain of a different quality in different types of tissue. Thus the injection of 0.5 c.cm. of 6% hypertonic saline produces burning in the skin, aching pain in the muscles, and pain of a different quality in the subcutaneous tissue of the forearm. The quality of a pain is a function of the injured tissue. The same tissue will always give pain of the same quality, whatever the stimulus (Lewis, 1938). To become convinced of this one must take every precaution to obtain the pain in as pure a quality as possible. It is necessary to avoid stimuli that excite more types of tissue at a time; to eliminate all concomitant modifying feelings of touch, pressure, stretch, and temperature; and to use stimuli that act for equal intervals of time when comparing two tissues.

Types of Somatic Pain

From the quality and from other characters of their pain it is possible to classify human tissues into groups. Neither anatomical structure nor physiological function determines to which group a tissue belongs. Thus the injection of hypertonic saline within the triceps muscle of a patient who had post-undulant arthritis of the hip-joint produced pain which he regarded as of the same quality as the pain in his thigh. Injection of 0.3 c.cm. of 6% hypertonic saline within the tendon of my flexor carpi ulnaris gave pain whose quality and characters resembled the pain from my triceps but was different from pain provoked by an equal dose of the same solution injected at the surface of my tendo Achillis about an inch above its insertion. At least three types of somatic pain can be distinguished: (1) Surface pain, from the cutaneous and mucosal surfaces. (2) Subsurface or intermediate pain, from the subcutaneous tissues (where these are thin), from the submucosae, and from some adjacent structures when the subcutaneous tissue is very thin. (3) Deep pain, from muscles and from all the other sensitive deep tissues in general.

Surface Pain

If pain from the skin is very short it is pricking, if prolonged it is burning; the difference between the two being only of duration, not of quality (Lewis, 1938). Pricking can be elicited from exactly the same spot and by the same stimuli that give burning when the injury is prolonged. Pricking and burning are the only sensations of pain from the normal skin. They are generally modified by concomitant subcutaneous pain or by touch, temperature sense, etc., but if these feelings are eliminated the skin is unable to respond to any sort of injury except by pricking or burning. Burning is the sensation which we associate with excessive heat, but it is definitely not the response of the temperature organs to the excess of heat. Excessive heat produces burning because it produces prolonged injury and stimulates the cutaneous organs of pain. Also cold, if intense enough to cause injury, produces burning, as can be evidenced by prolonged immersion of a finger in a freezing mixture, by a cold wind, or by chilblains. Pricking or burning is absent in injury to the skin only if the cutaneous organs of pain are not functioning on account of destruction or otherwise. On the other hand, if the lesion is only superficial, as in a mild burn, no other pain will be added.

Itching

Injury to the skin can also produce itching, but for itching to appear the stimulus must act on a skin that is hyperalgesic. Itching is not elicited from a normal skin. In a skin that has been already injured, as in dermatitis, it can be provoked even by very slight added injury, such as scratching, the application of ointments, changes of temperature, etc. The quality of itching cannot be distinguished from the pricking-like pain which is produced by droplets of strong acids or of other irritants if they fall on the skin in size so minute as not to be felt. It is suggested that itching is only a variety of surface pain which is completely free from any other sensation and which occurs in skin that is hyperalgesic from a previous injury.

Other Characters of Cutaneous Pain

The functions of surface pain are obviously directed towards providing enough information about the offending stimulus to make adequate defensive reactions possible. In fact, all its characters tend to promote accuracy: the pain is very well located; it is localized and never referred to a distance; the power of discrimination is good. The protective reflexes provoked by the injury are all directed with considerable precision towards the elimination of the stimulus or towards the withdrawal of the injured part from danger. Typical are the scratch and the flexor reflexes. If the stimulus is adequate there is an added systemic reaction which invigorates the mind and the body and enables the individual to face the danger. Sympathetic activity is then increased; the mind is on the alert, and emotions of anger, rage, fear, etc., may appear. These reactions are sometimes provoked purposely by inducing surface pain. Thus they occur when we stimulate horses by whipping or during certain forms of treatment of a fainting fit.

Pain from the Mucosae

Not all the mucosae are sensitive. Those that are distant from injury of external origin are insensitive. When, however, a mucosa is sensitive its pain is pricking or burning, as can be expected when we consider that a mucosa is a surface. Itching, pricking, and burning are familiar results of injury to the stratified mucosae of the conjunctiva, mouth, throat, anal canal, urethra, labia, and lower vagina. Whatever the stimulus, the pain is always of the same quality. Thus burning in the mouth occurs whether the injury is due to hot food or to a chemical irritant, catarrhal inflammation, ulcer, or atrophy from a deficiency disease.

The oesophageal mucosa is normally insensitive to the presence of gastric juice, which regurgitates even during normal digestion. When, however, the mucosa is injured from any cause it becomes sensitive to further injury. Its pain is then burning. The pain occurs during the ingestion of irritants or during digestion when acid juice regurgitates. It is then spoken of as heartburn. It is diffuse, and is located vaguely behind the lower part of the sternum.

The pain of cervical erosion is not burning; but the mucosa of the cervix is so much adherent to the underlying tissues that the pain of cervical erosion is probably due to these subjacent tissues. The mucosa itself is probably insensitive; it does not respond to pin-prick. Equally the pain of the nasal mucosa, when provoked by ordinary stimuli, is due chiefly to the underlying periosteum to which the thin simple mucosa is adherent. If stimuli that act only very superficially are used, as in the inhalation of ammonia or on the instillation of hypertonic drops, the pain elicited is purely pricking or burning. The nasal sinuses and the middle ear are usually described as having a sensitive mucosa; but probably the mucosa is insensitive and the pain which is felt is periosteal. Pain from the larynx is pricking or burning.

The transitional mucosa of the urinary bladder also gives pricking or burning pain, but its behaviour is peculiar. The mucosa over the fundus is innervated from the lumbar segments while that over the trigone is innervated from the sacral segments. The sensitivity varies accordingly. When cystoscopic patients, under local analgesia, were examined in my presence it was shown convincingly that the mucosa of the fundus was completely insensitive and that pain from the fundus could be elicited only from the structures underlying the mucosa. In contrast to this the mucosa of the trigone was very sensitive. Crushing of a tiny fold between forceps produced pain whose quality was unmistakably burning. However, the pain was not located to the bladder but to the surface of the perineum. Pain of a different quality was obtained only if the stimulus also excited tissues that lie beneath the mucosa.

Subsurface or Intermediate Pain

The tissues that lie immediately beneath the skin or beneath the mucosae give pain whose characters differ from those of surface and of deep pain.

There seems to be a difference in the quality of the pain. Subcutaneous injury to a region where the subcutaneous tissues are thin, as over the forearm, gives pain of a quality which is distinct from pricking, burning, or aching. However, it is possible that this difference in quality from deep pain is felt only because it is modified by concomitant surface pain. When testing the subcutaneous tissues it is desirable to eliminate cutaneous pain, but it is not easy to do this convincingly without interfering with subcutaneous sensitivity. If unguentum anaesthesinae be rubbed over an area of lightly scarified skin till this feels numb to a pin-prick, or if an intradermal wheal be produced by a solution of novocain and adrenaline, a subsequent injection of hypertonic saline in the underlying subcutaneous tissue can be presumed to give pain that is unmodified by cutaneous pain. Its quality differs somewhat from deep pain; it is, if one may say so, of a higher tone.

Where the subcutaneous tissues are thick, as in the female mammary region, pain of the inner strata is not described as different in quality from deep pain. On the other hand, where the subcutaneous tissues are very thin, so that the skin is adherent to the deep fascia and underlying structures, the pain from these structures is also different from deep pain. Thus the periosteum over the tibia or over the knuckles, the outer fibres of the tendo Achillis, and the fibrous web between two fingers give pain whose quality differs from deep pain (Lewis, 1938).

Just beneath the body surface there is a second coating of tissues, pain in which is distinct in character from deep pain and complementary to surface pain in detecting injury of external origin. More than in quality, this intermediate type of pain differs from deep pain in its power to discriminate and to locate the injury. The pain is somewhat diffuse, but its diffusion is always limited to a narrow zone around the injury. It gets wider when the tissue is deep, but it is not referred to a distance. The reflexes provoked through it reinforce the surface reflexes in producing brisk movements, as can be evidenced by the technique adopted for the Babinski response.

The submucosae and some other structures to which the mucosa is adherent when the submucosa is very thin, as in the muco-periosteum of the nasal sinuses, are the seat of pain which is also distinct from deep pain. Thus pain from inflammation within a nasal sinus or within the middle ear is different in its quality from surface and deep pain. This pain, however, is not easily located. When the submucosa lies in a cavity that is at a distance from injury of external origin the pain is referred to an area over the surface which is innervated by the same segment.

Deep Pain

Pain from deep tissues has an aching quality. It is common to muscles and to all the other sensitive deep tissues in general.

Deep pain raises the alarm when injury reaches a deep locality, but it does not by itself furnish any useful information to help in eliminating the stimulus. It is non-discriminative. It is unable to disclose more sources of pain even if these are considerably distant from each other. It starts late, persists long, and does not portray the activity of the stimulus by fluctuations in its intensity. The pain is always very diffuse. It is impossible, from a deep tissue, to get pain which is felt only at the site of injury. The pain radiates to a distance, and this radiation is often extensive. There are several factors which determine whether the pain remains local or radiates extensively. The severity of the injury is important. A stronger concentration or a bigger dose of the hypertonic saline which was injected in my triceps determined different grades of diffusion. The time-interval after the injury is important too. When adaptation to pain starts after a variable interval, the pain becomes restricted to a narrow area; but subsequent injury of any nature, or even active muscular exercise, can not only re-exacerbate the pain but also make it extend to some distance. A very important factor is the depth of the injured tissue. The deeper the tissue the greater is the tendency of the pain to radiate extensively (Kellgren, 1939). The relation of the injured tissue to structures of vital importance, as the spine, is perhaps also important. The nearer the tissue to such structures the more the pain is radiated.

The radiated pain can be as intensive at a distance as over the site of injury. Thus when 2 c.cm. of a 6% saline solution was injected into my triceps the pain in my elbow and forearm was as intense as the pain in the arm. Sometimes the pain is more intense at a distance than over the injury. When 1 c.cm. of hypertonic solution was injected into the upper margin of the trapezius muscle at an equal distance between the head and the shoulder the pain was felt most intensely at the angle of the jaw, so that one would locate the injury much higher than it actually was. In these circumstances one speaks more of the diffused pain than of the pain over the injury, and indeed can ignore the latter pain completely, unless an added factor directs attention to the real site of injury. If the pain is exacerbated by the movements of a joint or by the active contraction of a muscle of which the patient is fully aware, it will be easy for the injured individual to connect the pain with the region that causes the exacerbation. Equally, if deep injury is accompanied by injury to overlying subcutaneous tissues or skin and subcutaneous tissues, the power of these tissues to locate will direct the individual's attention to the site of injury. Thus when 2 c.cm. of hypertonic saline was injected into my triceps by means of a very wide-bored needle through a normal skin, the pain was felt in the arm, elbow, forearm, and even hand, but it could be made out that its source was in the arm. When, however, an intradermal wheal was produced by a solution of novocain and adrenaline and the injection was performed through this wheal with a very fine needle, which was inserted to the same depth as on the previous occasion, the pain had practically the same distribution as before; but, so long as the arm was kept at rest, not even with an effort of attention was it possible to be sure that the pain originated in the arm. When the triceps was made to contract, especially if it was made to contract isometrically against resistance at the wrist, the pain in the arm was exacerbated, and that made the source appear more manifest.

Possibly, pain that is referred from certain viscera is badly located for similar reasons. It has been determined that many viscera are connected by their pain afferents to the centres which subserve the deep somatic structures. These centres can therefore be stirred into activity from either source, so that pain from the viscus and pain from the somatic tissues cannot be distinguished from each other (Lewis and Kellgren, 1939). Thus stimulation of the first lumbar interspinous ligament evokes pain with the distribution and other characters of renal colic, including retraction of the testis; stimulation of the left seventh cervical or of the left first thoracic ligament evokes pain which extends down the arm and cannot be distinguished from angina of effort. In these instances the patient is unable to distinguish whether the pain is visceral or somatic, or to locate its source. In either case there is no added factor which can attract his attention to the injured somatic spot or to the disturbed viscus. The patient will hence speak only of a diffuse deep pain along the segment.

The reflexes that accompany deep pain, far from provoking brisk defensive movements, produce tonic contractions and quiescence. They aim more at resting the injured part and protecting it from subsequent injury than at eliminating the offending stimulus. The contraction is slow in onset and gets maximal only after a considerable interval. Sometimes the rigidity is slight and passes unobserved, the patient limiting his movements more from fear of exacerbating the pain than from inability to move on account of spasm. When, however, the injury is appropriately located as near a joint, near a cavity, or near a vital organ, the spasm may be such as to resist even deep anaesthesia and hamper operative intervention. It may be localized, but when severe it may form a definite barrier around the greater part or the whole of the injured segment, and may even occur at a distance from the injury. Thus the cremaster may contract when the injury is located in the spine.

The general reactions that are associated with deep pain tend equally to inhibit activity. Far from being invigorating, they cause mental and physical depression, with diminished knee-jerks, low blood pressure, etc. If the injury is severe, especially if it is diffuse and located within the trunk or very near to it, the full picture of "nervous" shock appears.

The Segment

However diffuse or referred deep pain may be, its distribution follows always a segmental pattern (Kellgren, 1938). The same pattern fits the deep tenderness as well as the muscular rigidity that accompanies the pain. If in embryonic life the injured tissue has migrated from its first relative position to another segment, the pain still extends along the segment from which the tissue has migrated and to which it has remained attached by its innervation. This is exemplified typically by the pain from a lesion to the central part of the diaphragm whose area of diffusion lies in the area of distribution of the third and fourth cervical nerves.

Within the affected segment the direction of the diffusion of deep pain is determined more by the level of the segment than by the situation of the injured spot in the segment. Thus in a thoracic segment the pain is felt anteriorly even if the injury is situated as far backwards as an interspinous ligament. In the last thoracic and in the upper two or three lumbar segments there is hardly any space anatomically for an anterior diffusion, and deep injury at this level causes backache. In the upper cervical segments the direction is predominantly posterior to the occiput; in the lower cervical it is predominantly anterior to the arms.

This extension of pain in an anterior or posterior direction occurs the same whether the pain is visceral or somatic in origin. As already stated, renal colic and interspinous injury give pain with identical distribution. Backache can be caused by a lesion in a pelvic viscus or in a somatic structure. With thoracic or abdominal pain there is a tendency to look for visceral lesions and to forget somatic causes; and, in lumbar pain, to look for somatic and forget about visceral lesions. This tendency probably arises from the greater frequency of visceral lesions in thoracic or abdominal pain and of somatic lesions in lumbar pain; but it is wise to be "segmentally minded" and to investigate all structures within the segment in every case.

Visceral Pain

The viscera lie, as a rule, so deep within the segments that they are well protected and do not therefore respond to the stimuli that provoke pain ordinarily in the somatic tissues. Many viscera are completely insensitive, and any pain that is associated with them is caused by an extension of the lesion to adjacent tissues, as to the parietal peritoneum or to the retroperitoneum. Other viscera are sensitive, but their stimuli must be appropriate to them, and their pain has the same characters and is probably furthered by the same mechanism as somatic pain. Embryologically these viscera are intimately connected with the somatic tissues. They arise entirely from the mesoderm, from each side of the segment; they are paired, or have been paired during some period of their embryonic life. Examples are the kidneys and the heart.

There is still another group of viscera. These are hollow organs which have never been paired, but have had always a mesial attachment and have included ectoderm in their cavities. Pain from these organs has distinct characters. It is exemplified typically by the pain of obstruction from a stenosing carcinoma of the colon. The appropriate stimulus is related to the spasm, which is a response to the stretching provoked by the obstacle. This pain, in quality, is not different from deep pain, and can be simulated by injecting hypertonic saline in the abdominal rectus muscles, but it is never accompanied by muscular rigidity or by tenderness of any kind; hence compression of the wall and active movements are not resented, and the patient may press his abdomen, bend, and writhe about restlessly in a vain attempt to obtain relief (Morley, 1937). The pain is diffuse, but even when maximal it remains always mesial and never extends beyond the abdominal wall to the limbs. Its distribution is segmental (Brown, 1942). It is referred to the level from which the viscus migrated in embryological development. It is epigastric for the stomach, duodenum, and gall-bladder; umbilical for the small intestine and appendix; hypogastric for the colon and urinary bladder. Pain from the rectum is felt vaguely about the site of the viscus.

Pain from Nervous Tissues

Before concluding it must be mentioned that clinically there is yet another type of pain derived from a lesion to the nervous tissues, central or peripheral. In the sense that it is never meant to serve a defensive purpose this pain is not physiological, and therefore is not considered further here.

Conclusion

From their clinical characters we can distinguish types of pain each of which is related to a definite group of tissues. These tissues have in common their relation to the body surface.

There must be in each segment a complex mechanism which presides over the manifestations of deep pain in that segment. This mechanism can be set in motion by certain visceral as well as somatic afferents. Their connexions must be such that the whole or the greater part of the mechanism can be set in motion even by limited injury; hence the pain is distributed widely and lacks discrimination. More superficial tissues have connexions which are more limited, while the connexions of the hollow abdominal viscera which have a mesial attachment in their embryonic life are distinct.

The connexions from the skin must be entirely different, as the pain differs not only in discrimination, power of location, and type of reflexes provoked, but also in quality.

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SOME SOCIAL ASPECTS OF BURNS IN GLASGOW

BY

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The Magnitude of the Problem

The present high incidence of accidental burns in the civilian population, causing incapacity often of long duration, is a problem of great importance to the community in a state of total war. The study of the factors related to the occurrence of these injuries is of immediate interest. It should reveal also whether or not the high incidence may be expected to continue with the resumption of more normal conditions.

The progressive increase in the numbers of cases of burns admitted to hospital in Glasgow over a period of 100 years has been shown clearly by Dunbar (1934); it is probable, as Dunbar himself suggests, that part of this increase was due to a greater liability or inclination of burned patients to be treated in hospital in the latter part of the period surveyed, but that can hardly be the only factor concerned. Thus at the beginning of the period—in the decade 1833–42—the maximum number of cases admitted to the Glasgow Royal Infirmary in 12 months was about 80. At that time the Royal Infirmary was the only Glasgow hospital to which patients with burns were admitted. In the last decade considered by Dunbar—1923–32—a level of about 320 admissions in 12 months was reached, in spite of the fact that by this time two other large voluntary hospitals were treating these injuries. In the 10-year period 1933–42 a maximum yearly admission of 327 cases was attained. In the 14 months from June, 1942, to Aug., 1943, 1,803 cases of burns were treated in the burns unit of the Glasgow Royal Infirmary, and, of these, 303 (16.8%) were admitted to the wards.

The following points should be noted as a preliminary to the considerations given later: (*a*) The Royal Infirmary, Glasgow, is situated in an industrial area and might therefore be expected to deal with a high proportion of industrial accidents. (*b*) The large numbers of infants and children treated for burns at the Infirmary do not represent all the

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cases of burns in the district. Some would be treated at the Royal Hospital for Sick Children. (*c*) There is no reason to suspect preferential admission of one or the other sex to the burns unit of the Infirmary. (*d*) No cases of burns due to enemy action are included in this series.

Incapacity due to Burns

The 1,803 cases of burns are responsible for a considerable amount of incapacity among the wage-earners of the community. Analysis of the period of disablement in the various age groups of the 303 cases admitted to hospital is made in Table I. The figures indicating the disablement period include the total time spent in hospital and an average of 7 days during which outdoor treatment was given. This is a very conservative estimate.

TABLE I.—*Age and Sex Distribution of 303 Cases of Burns admitted to Glasgow Royal Infirmary*

Age (Years):	0–10	11–20	21–30	31–40	41–50	51–60	60+	Total
Males	77	23	13	22	13	11	8	167
Females	65	19	13	12	9	10	8	136
Total ..	142	42	26	34	22	21	16	303
Average period of disablement (days) per case	34·2	36·1	44·6	39·4	38·8	39·2	32·9	

In the age group 15–60 years the immediate result was a loss to the community of an average of 3,180 man-hours per month. In addition an average loss of 2,900 man-hours per month (calculated on the basis of an 8-hour working day) occurred in 668 cases of this age group treated wholly as out-patients. This loss of a total of 6,080 man-hours per month does not include a period of partial incapacity, the extent and duration of which it has been impossible to estimate; nor does it take account of the remote effects of the more severe burns sustained during the first 15 years of life, or the remote effects, psychological and material, of severe disfigurement.

Mortality due to Burns

Some idea of the magnitude of the problem can be obtained from the recorded mortality figures in relation to burns in Britain and the United States of America (Table II). (The figures for Britain were obtained from the Reports of the Registrar-General, 1937; those for America from the U.S. Bureau, Vital Statistics, Special Reports, 1939, **7**, 77, quoted

TABLE II.—*Mortality from Burns in Great Britain and the U.S.A.*

	Scotland, 1937	England and Wales, 1937	U.S.A., 1939
Population	4,976,610	41,031,000	128,000,000
Deaths from burns ..	256	1,318	6,240
Death rate per 10,000	0·51	0·32	0·49

by McClure, 1939). The increasing numbers of burns noted by Dunbar, together with the attendant disability and these mortality figures, suggest that there is every prospect of the maintenance of this high incidence.

All differences mentioned in the present report have been tested for statistical significance, and are unlikely to have arisen as the result of chance unless it is specifically stated.

Aetiological Factors

Analyis of the cases treated at the Glasgow Royal Infirmary from June, 1942, to Aug., 1943, provides the following information.

TABLE III.—*Age Incidence*

Age Group (Years)	Population, 1931 Census	%	Total Burns	%	Rate per 1,000	Total Admissions	% Total Cases
0–	225,334	20·7	737	41	3·28	142	19·3
11–	192,173	17·7	392	22	2·05	42	10·7
21–	188,215	17·3	216	12	1·15	26	12·0
31–	153,856	14·1	181	10	1·18	34	18·8
41–	130,875	12·0	150	8	1·15	22	14·7
51–	107,355	9·9	77	4	0·72	21	27·2
61+ ..	90,653	8·3	50	3	0·55	16	32·0
All ages ..	1,088,461	100·0	1,803	100	—	303	16·8

Age.—Of the total of 1,803 cases 41% occurred in the first 11 years of life, the proportion falling with each successive decade. Only 3% of the cases occurred in persons over 60 years of age (Table III). The very high incidence of burns in infants and children is shown by the fact that 53% of the cases occurred in the first 15 years and 25% in the first 3 years of life. On the basis of the age distribution of Glasgow's population in 1931, no excess of burns in children could have been suggested if only 20% had occurred in the first 11 years of life. The figure is, however, so much greater than this (41%) that it is probably significant in spite of changes in the age distribution due to the outbreak of war. With regard to the age distribution of cases admitted to hospital, Table III also indicates that the admissions in each age group were not proportional to the total cases. Fewer patients under 21 and more of those over 21—particularly in the ages above 40—were admitted to hospital. These differences are significant, and the general impression is confirmed that, while the incidence of burns is higher at the younger ages, the injuries are more serious in the older patients.

Sex.—Of the 1,803 cases 56.3% were males and 43.7% females—a ratio of 128:100. Of the 303 patients admitted to the wards, 55% were males and 45% females—a ratio of 123:100. Comparing the age distribution of male admissions with that of females, no real difference is demonstrable. In Dunbar's series, until 1865 the ratio of 200:100 obtained, and in the last decade considered by him the ratio was 100:100. Even if males and females were equally represented in the population of Glasgow it would be valid to deduce from the above figures an excess of male patients. But the 1931 Census figures show that females were slightly more numerous (93:100), and the withdrawal of men to the Services has probably emphasized the difference. It is concluded, therefore, that burns are more frequent among males than among females at every period of life, that this is equally true whether the cases are mild or severe, and that in these respects the position has altered but little in the last 10 years.

Cause of the Burn.—Information as to the cause of the burn was available only for patients admitted to the wards (Table IV). It is

TABLE IV.—*Causes (303 Cases)*

Type of Burn*	Cases	% Total	% Domestic
Industrial	52	17·2	—
Domestic	251	82·8	—
Scalds	*132*	—	*52·6*
Fire	*107*	—	*42·6*
Petrol	*8*	—	*3·2*
Electric	*4*	—	*1·6*

* No case of burn from enemy action or from conflagration is included in this series.

of interest to record that 13.9% of the domestic burns were due to hot tea.

Contributing Factors.—The chief intrinsic factors apart from age and sex are mental. They include epilepsy, alcoholism, and insanity with attempted suicide. The incidence of these factors in the admissions is shown in Table V. Mental dullness was noticed in many cases, but in the absence of reliable criteria for its assessment no accurate statement can be made on this point. The influence

TABLE V.—*Contributing Factors in 303 Cases admitted to Hospital*

	Cases	% Total	% in Patients over 15
Epilepsy	12	4·0	11·7
Alcoholism	6	2·0	5·9
Attempted suicide	2	0·7	1·9

of these factors is more accurately shown in relation to the number of burns in adults. The term "alcoholism" refers here only to a degree of intoxication amounting to stupor at the time of burning. Many patients had taken alcohol in small amounts, and its relation to the accident was difficult to assess.

Time of Burning.—The time of sustaining the burns in 1,803 cases is shown in Table VI. As might be expected, the majority of patients sustained the injury between 9 a.m. and midnight. In addition, the six-hour period which shows the greatest number of cases is 2 to 8 p.m. The time of burning in relation to age is of particular interest (Table VII). Altogether, 386 (21%) of the 1,803 patients received the burn after 8 p.m. Of this number 287 (74%) were under 16 and 144 (37%) were under 4 years of age. During the remaining part of the 24 hours only 47% of the burns were sustained at ages under 16 and only 22% at under 4. Statistical tests show no difference between the two periods as regards age distribution among patients under 16. But it is a grave reflection that while from midnight to 8 p.m. slightly less than half of the burns occurred in children under 16, yet from 8 p.m. to midnight—i.e., a time when one would expect young children to be in bed and safe—three-quarters of the burns sustained occurred at these young

TABLE VI.—*Time of Burning in 1,803 Cases*

Time	Cases	Time	Cases
12 mn.– ..	8	12 noon– ..	126
1 a.m.– ..	6	1 p.m.– ..	97
2 „ – ..	8	2 „ – ..	120
3 „ – ..	4	3 „ – ..	154
4 „ – ..	6	4 „ – ..	148
5 „ – ..	7	5 „ – ..	154
6 „ – ..	17	6 „ – ..	111
7 „ – ..	19	7 „ – ..	149
8 „ – ..	50	8 „ – ..	121 }
9 „ – ..	101	9 „ – ..	109 } 386
10 „ – ..	74	10 „ – ..	100 }
11 „ – ..	58	11 „ – ..	56 }

ages. The last column of the table shows that the proportion of burns occurring after 8 p.m. was highest between ages 1 and 2 (38% of all burns at this age happened after 8 p.m.). The proportion varies between 23 and 30% at other children's ages, but for all ages over 16 combined it is as low as 11.7%.

TABLE VII.—*Age and Time Distribution (1,803 Cases)*

Age Group (Years)	Total No. Burned	Up to 8 p.m.			After 8 p.m.			Burns after 8 p.m. as % of Total at Each Age
		No.	%		No.	%		
0– ..	154	107	7·6	47·2	47	12·2	74·4	30·5
1– ..	202	126	8·9		76	19·7		37·6
2– ..	92	71	5·0		21	5·5		22·8
4– ..	147	104	7·3		43	11·1		29·2
7– ..	124	86	6·1		38	9·8		30·6
10– ..	104	74	5·2		30	7·8		28·8
13– ..	133	101	7·1		32	8·3		24·3
16+ ..	847	748		52·8	99		25·6	11·7
All ages	1,803	1,417		100·0	386		100·0	21·4

Extent of the Burn.—The average extent of the burn differed greatly in the sexes. This is seen to be due to the large proportion of males with burns of minor degree, and the greater proportion of severe burns in females (Table VIII). Only 13% of the males had

TABLE VIII.—*Extent of Burn in 297 Admissions for which Data were available*

Area Burned (%)	Males		Females	
	Cases	% of Total	Cases	% of Total
0–	90	55	54	41
5–	52	32	43	32
15–	12	7	21	16
30+	10	6	15	11

burns involving over 15% of the body surface, against 27% of the females. In addition, the average area of the burn was 8% in the males and 14% in the females. The tendency for the more severe burns to occur in the female may be related to the difference in clothing.

Deaths due to Burns

In the series of 303 admissions there were 40 deaths. Fatality rates by age and sex are given in Table IX. At every age group the rate is higher for females than for males, and this in itself indicates that the excess fatality rate for females at all ages combined—17.6%, as compared with 9.6% for males—is significant. Using broader groupings, the figures

TABLE IX.—*Fatality Rates by Age and Sex in 303 Admissions*

Age Group (Years)	Males			Females		
	Cases	Deaths	Fatality Rate (%)	Cases	Deaths	Fatality Rate (%)
0–	77	8	10·4	65	9	13·8
11–	23	0	0	19	2	10·5
21–	13	0	0	13	0	0
31–	22	2	9·1	12	2	16·3
41–	13	1	7·7	9	3	33·3
51–	11	1	9·1	10	1	10·0
61+	8	4	50·0	8	7	87·5
All ages ..	167	16	9·6	136	24	17·6
0–	100	8	8·0	84	11	13·1
21–	48	3	6·2	34	5	14·7
51+	19	5	26·3	18	8	44·4

suggest that the fatality rate is much higher at the older ages; but the total number of deaths is too small for valid statistical tests, so that this conclusion must be accepted with reserve.

When the age distribution of the deaths in this series is compared with that of deaths from burns in Scotland as a whole for 1941* no real difference can be demonstrated (Table X).

TABLE X

Age Group	This Series	Scotland, 1941
0–	17	105
11–	2	21
31–	8	21
51+	13	89
All ages	40	236

$\chi^2 = 4{\cdot}9$. $P = 0{\cdot}17$.

It is possible, therefore, to arrive at a very crude estimate of the number of admissions to hospital from burns in the whole of Scotland. For if 40 deaths arose from 303 admissions, then 236 deaths would have arisen from 1,788 cases of burns serious enough to be admitted to hospital.

The mortality from scalds was lower than that of other types of domestic burn. In 132 cases of scald 9 (6.8%) deaths occurred, whereas 29 deaths occurred in the other 119 domestic cases (24.4% mortality; difference, $17.6 \pm 4.5\%$). Only 2 deaths occurred as a result of industrial burns (3.8% mortality, as compared with domestic 15.1%; difference $= 11.3 \pm 5.2\%$).

Summary and Conclusions

This report gives a statistical analysis of 1,803 cases of burns treated in the burns unit of the Glasgow Royal Infirmary between June, 1942, and Aug., 1943, particularly in regard to 303 patients who were admitted to hospital. It is supplementary to the series of papers published in "Studies of Burns and Scalds: Reports of the Burns Unit, Royal Infirmary, Glasgow, 1942–3" (Med. Res. Cncl. Sp. Rep. Ser. No. 249, 1944).

The incidence of burns was high at the younger ages, but the results were more serious in older patients. The incidence was higher among males, but fatality was greater among females.

The injuries were sustained most frequently between 2 p.m. and 8 p.m., but the incidence of burns at a late hour was greatest in the early age groups. Between midnight and 8 p.m. less than half the burns sustained occurred in children under 16, but between 8 p.m. and midnight three-quarters of the accidents occurred at these young ages. The grave social implication of this finding is stressed.

We are indebted to Mr. A. M. Clark, surgeon in charge of the burns unit, for permission to publish these findings; and to Dr. L. Colebrook, Prof. J. W. S. Blacklock, and Prof. M. Greenwood for much helpful criticism.

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CHRONIC INTRACEREBRAL HAEMATOMATA

THEIR PATHOLOGY, DIAGNOSIS, AND TREATMENT

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Intracranial haemorrhages may result from rupture either of normal or of diseased blood vessels. Apart from tearing by accidental forces, healthy cerebral blood vessels rarely burst; on the other hand, when weakened by disease or by congenital malformation the walls of a cerebral blood vessel may give way when subjected to normal stresses and strains.

Spontaneous subarachnoid haemorrhage is a well-known cerebral catastrophe, diagnosis readily being made by lumbar puncture. The clinical picture is usually characteristic. A previously healthy young or middle-aged person is struck with a sudden and severe pain in the head which rapidly radiates into the neck and may reach as far as the fingers and toes. Consciousness may or may not be impaired, and when impairment does occur this may be immediate or delayed. Cranial nerve and limb palsies may or may not develop

* Latest figures available.

Blood is always present in the cerebrospinal fluid. Such haemorrhages result from the rupture of aneurysms of congenital origin, which most commonly arise from the vessels forming the circle of Willis. They do not result from the weakening of the vessel walls by syphilis or by any other degenerative process. Embryologically, the endothelial element of the cerebral vascular system is laid down first as solid columns of cells, and these columns later canalize to form the blood channels. The mesodermal coats of the vessels are laid down in sheets. Occasionally these mesodermal sheets fail to meet perfectly at the apex of the junction of two vessels, thus leaving a weakness or congenital defect. It is at such a site that the endothelial coat is likely to balloon and rupture even under the forces of a normal blood pressure. An alternative hypothesis on the formation of aneurysms is that they arise from the stumps of primitive vessels which normally completely disappear. Since the aneurysms arise from vessels that lie in the subarachnoid space, it is thought that when they rupture bleeding must always take place into the subarachnoid space. Occasionally, however, a congenital aneurysm may become attached to the brain tissue and rupture intracerebrally, to cause a chronic haematoma with resulting hemiplegia, as the following two cases will show.

Case I

On the evening of Jan. 22, 1943, a woman aged 28 was admitted to the Royal Victoria Infirmary, Newcastle upon Tyne, under the care of one of us (A. G. O.). It was ascertained from a relative that two hours previously, while sitting at a table writing a letter, she had suddenly slumped forwards. At this stage of the episode she was still conscious, and complained of severe pains over the right eye; the left side of the mouth was twisted and the left arm and leg were stiff. Vomiting occurred on two occasions. Previous to the attack she had been in excellent health and had not been subject to headaches.

When first examined in hospital, the woman was found to be in a state of semicoma; the left side of the body was paralysed; both pupils were of mid-dilatation and both reacted briskly to light; the optic nerve heads were not oedematous; the pulse rate, blood pressure, and temperature were normal; and respiration was deep and rapid. A diagnosis of a spontaneous subarachnoid haemorrhage was made, and this was later confirmed by lumbar puncture, the cerebrospinal fluid being heavily stained with blood. Later, special investigations proved that there were no metabolic disturbances resulting from dysfunction of the kidneys, pancreas, or liver. The blood Wassermann reaction was negative. We came to the conclusion that the subarachnoid haemorrhage was due to rupture of a congenital aneurysm situated somewhere on the circle of Willis, and probably on the right middle cerebral artery because of the left-sided hemiplegia.

On the third day after admission to hospital the woman was fully conscious and fully orientated, but the left-sided hemiplegia remained complete; she felt ill and suffered from considerable pain in the head, particularly over the right eye. From this time onwards very little change was noticed, save that occasionally she would become drowsy, when co-operation was imperfect. She complained continuously of severe headaches.

On Feb. 14 papilloedema was noticed for the first time; the hemiplegia was still complete, there being no evidence of any kind of improvement. On Feb. 16 she was transferred to the neurosurgical unit at the General Hospital, Newcastle upon Tyne, under the care of one of us (G. F. R.). At this date the neurological picture was as follows:

The woman was fully conscious and perfectly co-operative. Sight, speech, smell, and taste were normal. The whole of the left side of the body was densely paralysed. There was no sensory loss or any abnormal cerebellar signs. Both pupils were dilated and both reacted to light and to accommodation; there was a bilateral papilloedema of one dioptre. The blood pressure was 130/80.

Case II

During the evening of July 2, 1943, a young man aged 23 collapsed in his seat at a cinema and his friends carried him into the vestibule. Later he was taken home, and arrived there in a state of confusion, complaining of very severe headache. The next day he was admitted to the Royal Victoria Infirmary under the care of one of us (A. G. O.). At this time the man was in coma and the whole of the left side of his body was paralysed. The pupils were contracted and fixed and both eyes were pulled to the right; the optic disks were flat; both plantar reflexes were extensor; the knee-jerks were increased and the abdominal reflexes were absent. The man's head was extended and there was marked neck rigidity.

A diagnosis of subarachnoid haemorrhage was established by lumbar puncture. In the left lateral position the pressure of the cerebrospinal fluid, as measured by manometry, was 240 mm. of water, the normal figure lying between 150 and 50 mm. Further investigations proved that there was no generalized disease of the cardiovascular system, the blood pressure being normal. No metabolic disturbances were found to point to dysfunction of the kidneys, pancreas, or liver. The blood Wassermann was negative.

The next day the man was still unconscious, but less deeply so than on the day of admission; the hemiplegia on the left side, however, was still complete. On July 6, although his mental condition had improved, he was still confused. The pressure of the cerebrospinal fluid was 80 mm. The red blood cells had disappeared from the fluid, but there was xanthochromia. On July 18 the man was still complaining of severe headaches, and the pressure of the cerebrospinal fluid had risen to 180 mm. During the next two weeks his mental condition remained unchanged and there was no improvement in the hemiplegia. On Aug. 2 he was transferred to the neurosurgical unit at the General Hospital, Newcastle upon Tyne, under the care of one of us (G. F. R.). At this time the clinical picture was as follows:

The man looked ill and obviously had lost a good deal of weight. He was confused, but could co-operate in a simple neurological examination. The left side of his body was completely paralysed and the reflexes were typical of those of an upper motor neurone lesion. There was no sensory loss, nor were there any signs to point to dysfunction of the cerebellum. A bilateral papilloedema of one dioptre was present. The blood pressure was 140/95.

Discussion on Diagnosis and Treatment

In the above two cases the diagnosis of an intracranial congenital supraclinoid aneurysm was reasonably certain. Also, because of the hemiplegia, it was obvious that the aneurysms arose either from the middle cerebral artery or from some vessel close to it. From experience it is known that, with complete rest in bed, bleeding in this type of case will usually cease spontaneously and the hole in the aneurysm close by natural processes. Ligature of the internal carotid artery in the neck, although of great value in the treatment of a cavernous or subclinoid aneurysm, is of little use in the treatment of supraclinoid aneurysms. Repeated bleedings, in spite of rest, in ruptures of supraclinoid aneurysms are best treated by exposure of the aneurysm and local ligature or repair by muscle grafts.

It was, however, in the problem of the hemiplegia that we were particularly interested, and we came to the conclusion that the possible causes of the paralysis were as follows: (i) Obliteration of the channel of the middle cerebral artery either by rupture or by thrombosis. (ii) Pressure on the middle cerebral artery by the aneurysm itself. (iii) Pressure on the middle cerebral artery by a localized blood clot in the Sylvian fissure. (iv) Pressure due to an intracerebral blood clot. (v) Hydrocephalus due to blocking of the cerebrospinal fluid pathways.

Some years ago one of us (G. F. R.) saw a young woman who had had a spontaneous subarachnoid haemorrhage, due, no doubt, to rupture of a congenital aneurysm. From the start she was densely hemiplegic; papilloedema developed at a later date. In the belief that there might be a large surface clot compressing the convexity of the brain, the motor cortex was exposed by raising a bone flap. A large subarachnoid blood clot was in fact found and easily removed. Closure of the wound was so made that a subtemporal decompression was provided. After the operation the hemiplegia did not recede and, in spite of repeated lumbar punctures which proved that there was no further bleeding, the decompression continued to bulge. The girl was densely hemiplegic a year later.

In view of this experience, it was thought that some factor other than surface compression was the cause of the hemiplegia in the two cases under consideration. The secondary rise in intracranial pressure, as shown by the delayed papilloedema, was very suggestive of recurrent bleeding, although lumbar puncture proved on several occasions that bleeding into the general subarachnoid spaces had not occurred. In view of our uncertainty of the cause of the secondary rise in intracranial pressure and of the hemiplegia, it was decided to explore the region of the anterior end of the Sylvian fissure wherein the middle cerebral artery and its many branches lie.

Operation Notes and Results

Case I

On Feb. 18, 1943, under local analgesia, a temporal exposure was made through a muscle-split approach (Rowbotham, 1942). A

piece of bone about the size of a five-shilling piece was removed. No blood was found in the extradural or subdural spaces. There was no blood clot beneath the arachnoid mater. The brain was bulging, and was obviously under pressure. All the exposed brain tissue was stained a yellowish colour. The upper temporal gyrus was widened and flattened, and beneath it a softening could be palpated with the finger-tip. The frontal gyri were normal.

By means of a brain cannula a large cyst was found at a depth of 2 cm. in the temporal lobe of the brain immediately below the Sylvian fissure. An incision was made into the brain tissue and the cyst opened; this was about 4 cm. in diameter. Its contents were fluid, consisting of altered black-coloured blood, and were easily removed by gentle suction. The wall of the cyst was smooth and, so far as could be judged by the naked eye, was formed by condensed brain tissue. There was certainly no adventitious membrane such as invariably surrounds a chronic subdural haematoma. In the roof of the cyst a small mound of hard blood was firmly attached to the cyst wall. This no doubt marked the site where rupture of the aneurysm had occurred. Also, it was obvious that the parent vessel was the middle cerebral artery or one of its main branches as it lies deep and high in the Sylvian fissure. In order to minimize the danger of further bleeding, the blood clot was covered with a muscle graft. The dura was left open to provide a decompression; the muscle and scalp layers were re-formed in the usual way, drainage of the cyst being maintained through a fine rubber tube for 12 hours.

Immediate Result.—At the end of the operation the woman's condition was no worse. The next morning there was definite improvement; she was much more alert and her attention was better sustained. Already she could make weak movements with her paralysed arm and leg. From this time onwards improvement was rapid, full power in the limbs being regained before the reflexes returned to normal. The papilloedema had receded by the third day. On the tenth day after operation the woman got out of bed, and finally walked out of hospital on March 6—that is, 16 days after operation.

Late Result.—Her convalescence was steadily progressive, and six weeks after leaving hospital she had regained her normal health. Later she became pregnant, and a child was born on Feb. 2, 1944. After the confinement her general health deteriorated considerably; she became extremely nervous, and for a period lost the use of her left arm. In September she went away for a holiday, and on her return had made a complete recovery. She was examined on Dec. 18; she then had no complaints and stated that she was feeling very well. She was a plump, healthy-looking woman, and neurologically there was not a single abnormal sign.

Case II

On Aug. 4, 1943, under local analgesia, a right temporal exploration was made by means of a periosteal slide (Rowbotham, 1942). A square of bone was removed from the anterior half of the exposure. On opening the dura mater no blood or any other abnormal collection of fluid was found in the subdural space. There was no clot in the subarachnoid space. The brain was bulging, and was obviously under pressure. All the exposed brain tissue was stained a yellowish colour. The gyri of the frontal lobe were widened and flattened, and beneath them a softening could be palpated with the finger-tip. The exposed gyri of the temporal lobe were normal.

By means of a brain cannula a large cyst was found at a depth of 2 cm. in the frontal lobe of the brain immediately above the Sylvian fissure. An incision was made into the brain tissue and the cyst opened. The cyst was about 4 cm. in diameter. Its contents were fluid, consisting of altered black-coloured blood, and were easily removed by gentle suction. The wall of the cyst was smooth and, so far as could be judged macroscopically, was formed by condensed brain tissue. There was certainly no adventitious membrane such as invariably surrounds a chronic subdural haematoma. In the floor of the cyst a small mound of hard blood was firmly attached to the cyst wall. This no doubt marked the site of rupture of the aneurysm. Also, it was obvious that the parent vessel was the middle cerebral artery or one of its main branches as it lies deep and high in the Sylvian fissure. In order to minimize the danger of further bleeding, the blood clot was covered with a muscle graft. The dura was left open to provide a decompression; the muscle and scalp layers were re-formed in the usual way, drainage of the cyst being maintained through a fine rubber tube for 12 hours.

Immediate Result.—At the end of the operation the man's condition was no worse. The next morning there was definite improvement. He looked better and said that he felt better. He was much more alert, and his attention was better sustained. Already the hemiplegia was beginning to recede; weak but definite movements were possible in both the leg and the arm. From this time onwards improvement was rapid, full power returning before the reflexes became normal. On the fifth post-operative day there was no sign of papilloedema and the decompression was flat. On Sept. 16 the man had completely recovered from his illness and walked briskly out of hospital.

Late Result.—Some weeks after his discharge from hospital he had a peculiar feeling as if things were receding from him; also the left side of the face began to twitch. He did not lose consciousness, and felt well again in a few hours. A similar episode occurred some weeks later. In Feb., 1944, he returned to his employment as a melter in a steel-smelting works and has worked regularly ever since, no time having been lost because of ill-health. On examination on Nov. 20 he was a healthy-looking man of excellent physique. He had no complaints, and, apart from the operative defect in his skull, which is of little importance, not a single abnormal sign was to be found.

Commentary on the Underlying Neuro-physiological Mechanism

Probably a combination of cerebral shock and widespread arterial spasm accounted for the sudden impairment of consciousness that occurred at the moment of rupture of the aneurysm. The sudden loss of power on one side of the body probably was due partly to the effect of the above two factors and partly to the fact that the blood which should have been passing along the channel of the middle cerebral artery was passing out of the hole in the aneurysm. The deepening unconsciousness and deepening paralysis which further questioning confirmed or established were due to increasing haemorrhage. As the bleeding ceased and as cerebral shock and arterial spasm receded, consciousness to a large extent returned. The mental dulling which remained was probably due to the pressure of the blood that had been extravasated.

On the other hand, even though consciousness largely returned there was no improvement in the hemiplegia in either of the two cases under consideration. Subsequent events, however, proved that the channel of the middle cerebral artery had not been irretrievably destroyed, because full recovery of function finally did take place. Therefore, although we did not know it at the time, the paralysis must have been due either to vascular spasm or to pressure interfering with the arterialization of the motor cortex. Moreover, the ischaemia could not have been complete, because absolute ischaemia even for a few moments leads to irreversible injury and to permanent paralysis of function.

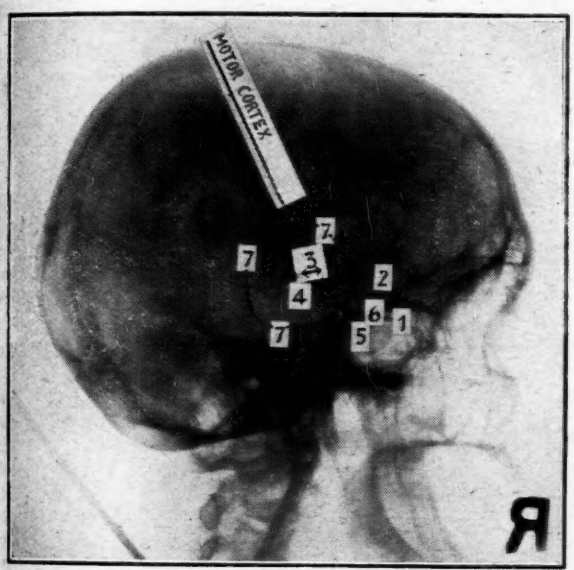
We felt that if the paralysis were due to the pressure of the extravasated blood it would be reasonable to assume that with time the blood would absorb and the paralysis resolve. The opposite, in fact, happened. Instead of the patients slowly recovering, intracranial pressure began to rise after an interval, and it is more than possible that they would have died of rising intracranial pressure. Even if death had not resulted it is very unlikely that recovery from the paralysis would have occurred from natural processes. The secondary rise in pressure was due to the breakdown of the intracerebral blood clot. As the clot broke down its molecular content increased, leading to a rise in osmotic pressure, so that fluid was drawn into the blood clot from surrounding tissues to form a blood cyst of increasing size. This increase in size accounts for the secondary rise in intracranial pressure, which was evidenced in both cases by the appearance of papilloedema and measured in one case by lumbar manometry. After drainage of the blood cyst recovery from the hemiplegia rapidly took place, thus proving the paralysis was due to the pressure of the cyst. The pressure could either have acted directly on the motor cortex by pushing up from below or have acted on the middle cerebral artery, causing partial obstruction of its lumen.

We came to the conclusion that pressure on the middle cerebral artery was probably the mechanism causing the hemiplegia, since recovery from the paralysis was so rapid. In our experience, in cases of hemiplegia due to long-standing compression, relief of the pressure does not lead to such quick improvement as occurred in the above two cases. It might be objected that recovery of function takes place rapidly after the removal of a large extradural blood clot caused by bleeding in the middle meningeal vessels. In such cases, however, the compression has lasted at most for one or two days, whereas in the two cases under discussion the compression and the hemiplegia had lasted 27 days in one case and 32 days in the other.

It might be suggested that at the time of operation it would also have been wise to expose the aneurysm, removing it or ligating its base, as well as draining the haematoma, so as to prevent the recurrence of further haemorrhages. This was not done because opening of the anterior end of the Sylvian fissure introduces the danger of starting up bleeding which is difficult to control, leading to the possible necessity for ligating the middle cerebral artery, with resulting hemiplegia of a permanent kind.

We should like to point out that the nature of the illness was explained to each patient before leaving hospital. The decision not to lead a completely sedentary life—one to have a child and the other to work before an open furnace—was made by the patients themselves. We believe they made the right decision. It is wrong to allow the sword of Damocles to hang too closely above one's head.

The above, so far as we are concerned, is a new venture into the therapeusis of intracerebral haemorrhages, and it has been a very successful one. It must be realized, however, that we chose to operate at the stage of the chronic subdural haematoma and not at the stage of an acute intracerebral haemorrhage. Possibly in those cases of hemiplegia following a subarachnoid haemorrhage it is also wise to operate even when there is no secondary rise in intracranial pressure. We doubt, on the other hand, whether surgery has much to offer in the treatment of ordinary apoplexy or, in fact, in the early stages of a cerebral haemorrhage due to any cause.



1. Ophthalmic artery. 2. Anterior cerebral artery. 3. Middle cerebral leash of arteries. 4. Posterior communicating artery. 5. Internal carotid artery. 6. The point at which the internal carotid artery leaves the cavernous sinus to enter the subarachnoid space. 7. The region in which the chronic cerebral haematomata were found in the two cases described in this paper.

Arteries which arise above the level of the cavernous sinus or clinoid process are classified as supraclinoid aneurysms; they burst usually into the subarachnoid space, rarely into the brain tissue, and sometimes into both. Infraclinoid aneurysms rarely burst either into the subarachnoid space or into the cavernous sinus itself. They do, however, commonly stretch the structures enclosed within the walls of the cavernous sinus, causing in particular a third-nerve palsy.

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With its issue for January, 1945, *The World's Children* starts its twenty-fifth annual volume and reverts to monthly publication. According to the leading article, the journal began as a record of the suffering caused to children as a result of the first world war, and in those days it earned the reputation of being, in the words of a Scottish newspaper, "the most melancholy magazine in existence." But there have also been bright spots in the twenty-four years' record of the welfare of children, and they too have had full place in the pages of *The World's Children*. It is published by the Save the Children Fund, 20, Gordon Square, W.C.1.

SULPHANILYLBENZAMIDE, SULPHANILYLAMIDOBENZAMIDE, AND SUCCINYL SULPHATHIAZOLE IN THE CHEMOTHERAPY OF SONNE DYSENTERY

BY

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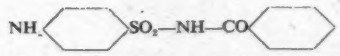
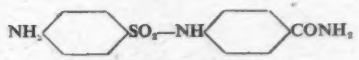
The treatment of bacterial infection of the intestinal tract by chemical agents was greatly encouraged by the introduction of sulphanilylguanidine (sulphaguanidine) (S.A.G.) by Marshall and his colleagues. The use of the drug is based upon the poor absorption from the gut of a compound soluble enough in the gut contents to be antibacterial to the pathogens concerned. S.A.G. is a rather poor antibacterial substance, and, while effective against dysentery due to Flexner strains, it has proved much less satisfactory in Sonne infections, particularly in effecting bacteriological cure of the Sonne carrier. To meet the difficulty, Brownlee and Tonkin (1941) have suggested the use of sulphanilylbenzamide (S.A.B.); and more recently sulphanilylamidobenzamide (S.A.A.B.) has been introduced. The constitution of these two drugs is shown below:



Sulphanilylbenzamide



Sulphanilylamidobenzamide

A point bearing on the toxicity of these two drugs is that, while their absorption is greater than that of S.A.G., they are acetylated to a less degree. The solubility of S.A.B. varies from 91 mg. per 100 c.cm. in an acid urine (*p*H 5.8) to 484 mg. in an alkaline urine (*p*H 7.8). The corresponding solubilities of S.A.A.B. are 112 and 95 mg. per 100 c.cm. (Brownlee, unpublished communication).

We are reporting the results of a clinical trial of S.A.B. on 41 patients of all ages suffering from Sonne dysentery, of S.A.A.B. on 112 patients, and of succinyl sulphathiazole (sulphasuxidine) (S.S.) on a small series of 26 for comparison. The majority were barrier-nursed, while the remainder were nursed in separate glass-walled rooms. In Sonne dysentery the symptoms are usually mild and the disease is more of a nuisance than a danger to the patient. Chemotherapy is therefore directed to the clearance of *Bact. sonnei* from the bowel rather than cure of the "illness," but it does in fact have a beneficial effect in that, in acute cases, within 24 to 48 hours the stools are usually formed, are normal in colour, and contain no blood or mucus when S.A.B. is used. This is true, though to a slightly less degree, for S.A.A.B.

The use of the rectal swab (Cruickshank and Swyer, 1940) and the introduction of desoxycholate citrate agar (Hynes, 1942) have shown that the convalescent carrier is much more common than was at one time believed. In fact, it has been stated that more than half of the clinically infected cases may still be excreting the organism 3 to 4 weeks after onset. Therefore elimination of this carrier state is of the greatest importance. The existence of the carrier being now generally accepted, control untreated cases were dispensed with in the present series and all bacteriologically proved cases were drug-treated. The patients' stay in hospital was divided into a preliminary observation period which averaged 9 days for the S.A.B., 4.5 for the S.A.A.B., and 6 for the S.S. series respectively, a treatment period of 5 days, followed by a second observation period averaging 14.8, 10.9, and 13.2 days for the same three series. As will be seen from an examination of Table II, the length of both preliminary and second observation periods varied considerably. This was caused by such events as concurrent diseases which delayed discharge of

bacteriologically free patients, or by other circumstances beyond our control. During the whole of the three periods in the S.A.B. series daily specimens of faeces and rectal swabs (Sundays excepted) were plated on desoxycholate citrate agar, but in the S.A.A.B. and S.S. series bacteriological examinations were done on alternate days. Dosage of all drugs was according to weight of the patient, as shown in Table I.

TABLE I.—*Dosage of Drugs (in Grammes)*

Body Weight (in stones)	Initial Dose (1st 24 hours)	Daily Maintenance Dose for Next Four Days				Total Dose for Course
		1st	2nd	3rd	4th	
1	3·5	1·0	0·5	0·5	0·5	6·0
2	6·5	1·5	1·5	1·5	1·0	12·0
3	10·0	2·0	2·0	2·0	2·0	18·0
4	13·5	3·0	2·5	2·5	2·5	24·0
5	16·5	3·5	3·5	3·5	3·0	30·0
6	20·0	4·0	4·0	4·0	4·0	36·0
7–12	20·0	6·0	6·0	6·0	6·0	44·0

It will be seen from Table II that the average time taken to obtain bacteriological clearance with S.A.B. was 1.8 days, after an average of 9 days persistently positive. It is submitted that this rapid change from positive to negative, especially in patients with long preliminary-observation periods, may in a significant proportion of cases be attributed to chemotherapy. The second observation period of 14.8-days average may be too short to eliminate every intermittent carrier, but to do this thoroughly repeated examination over a much longer period would be necessary. This is not practicable in hospital routine. There was very little difference in the time required to obtain bacteriological clearance in the various age groups.

Using full doses of S.A.A.B. in 71 cases, the average time of clearance was 3.6 days, after an average of 4 days persistently positive. This clearance time is twice that needed with S.A.B., but it must be remembered that in this and the remaining two series culturing on alternate days only may have unfairly lengthened the apparent clearance time. As S.A.A.B. is absorbed less rapidly than S.A.B. and the concentration of drug in the intestine is therefore higher, it was thought that smaller doses of S.A.A.B. might be equally effective. A series of 30 cases was accordingly treated with half the original dose. The results were interesting in that both the time to obtain bacteriological clearance and the number of relapses to positive were less. The S.S. series, treated with full doses, gave a clearance time of 2.4 days, but the relapse rate was the highest of all.

Intermittency of Excretion or Reinfection

Bacteriological relapses—i.e., the reappearance of the Sonne bacillus in faeces or rectal swab after two or more consecutive negative results—occurred in 24 instances. These cases, which are not included in Table II, arose in all age groups, being relatively greatest in the 1–2 and 2–3 years groups, which contained 7 and 5 respectively. Distribution among the various series was as follows: In the S.A.B. series, 3 out of 41 cases (7.3%); in the S.A.A.B. full-dose group, 11 out of 82 (13.4%), and, in the half-dose group, 1 out of 30 (3.3%); while the S.S. group produced 9 out of 26 (34.6%).

Of the 3 cases occurring in the S.A.B. series two became negative after a second course of S.A.B., while the third cleared without further drug. Of the 11 full-dosage S.A.A.B. relapses 8 cleared after a second course, 1 after a third, and 2 without more treatment. The single half-dose S.A.A.B. relapse failed to clear after a second half-dose course, but did so after a further full-dose course. The S.S. relapses cleared as follows: 2 after a second course of S.S.; 2 after a second course of S.S. plus one course of S.A.A.B.; 3 after a course of S.A.A.B.; and 2 without further treatment.

These relapses, when they occurred within a period of a week from the time when the first negative was obtained, are most probably to be attributed to intermittency of excretion and the majority of our cases fell into this group. But in 4 patients there were 4, 8, 14, and 6 consecutive negative cultures over periods ranging from 2 to 5 weeks, and in these cases reinfection would seem to be a more likely explanation for the reappearance of the Sonne bacillus in the faeces. Sonne dysentery is among the most infectious of diseases, and with the present difficulties with nursing staff it is not always possible to be certain that the high standard necessary in a barrier ward is being maintained. It is important to remember that after an attack of Sonne dysentery constipation may be a troublesome feature, and one or two negative findings immediately after cessation of chemotherapy may be attributable to constipated stools.

TABLE II.—*Time Required to Clear Bact. sonnei from Faeces and Rectal Swabs (155 Patients)*

Drug	Age Group	Cases	1st Observation Period in Days			Total Drug (g.)	Days to Clear Bact. sonnei	2nd Observation Period in Days		
			Longest	Shortest	Average			Longest	Shortest	Average
S.A.B. Full dosage	0–5	30	34	2	10·0	10·6	1·7	58	6	15·8
	5–12	3	9	4	5·6	20·6	2·0	16	8	12·3
	Over 12	5	8	4	5·4	37·7	2·0	15	6	11·0
	All ages	38	34	2	9·0	15·0	1·8	58	6	14·8
S.A.A.B. Full dosage	0–5	45	21	2	4·6	11·3	3·8	35	6	10·7
	5–12	19	8	2	3·0	20·0	3·0	35	6	12·1
	Over 12	7	4	2	2·6	51·4	4·4	36	6	14·0
	All ages	71	21	2	4·0	17·8	3·6	36	6	11·4
S.A.A.B. Half dosage	0–5	17	22	2	6·7	5·6	1·9	35	6	9·9
	5–12	8	8	1	4·2	11·2	3·1	11	6	8·4
	Over 12	4	7	1	4·0	28·0	4·0	20	6	11·0
	All ages	29	22	1	5·6	10·3	2·5	35	6	9·7
S.S. Full dosage	0–5	14	27	3	6·1	13·7	2·2	27	6	14·0
	5–12	2	5	4	4·5	24·0	3·0	12	10	11·0
	Over 12	1			5·0	54·0	4·0			8·0
	All ages	17	27	3	6·0	16·7	2·4	27	6	13·2

TABLE III.—*Blood and Urine Concentrations (mg. per 100 c.cm.)*

		Free			Acetylated			Total		
		Highest	Lowest	Average	Highest	Lowest	Average	Highest	Lowest	Average
Blood	S.A.B. 38 cases	8·0	0·5	3·0	1·5	0·25	0·66	8·0	0·5	3·66
	S.A.A.B. Full dose. 17 cases	2·0	0	1·23	0·5	0	0·38	2·5	0	1·60
	S.A.A.B. Half dose. 25 cases	2·25	0	1·16	0·5	0	0·40	2·75	0	1·56
	S.S. 14 cases	0·75	0	0·42	0·25	0	0·17	1·0	0	0·58
	S.A.G. 5 cases	1·25	0·5	0·70	0·5	0·25	0·40	1·75	0·75	1·10
Urine	S.A.B.	270	40	125	150	5	51	320	52	130
	S.A.A.B. Full dose	500	30	193	100	10	48	560	40	241
	S.A.A.B. Half dose	380	12	97·2	120	5	22·2	460	24	119·4
	S.S.	40	7	14·6	10	3·5	6·2	45	14	20·8
	S.A.G.	200	70	148	60	20	38	260	110	186

Absorption and Excretion

To obtain some idea of the absorption and excretion of the drugs in man the blood concentrations were estimated at the end of the course of drug administration. For the purpose of comparison similar investigations were carried out in five patients who received similar dosages of sulphanilylguanidine (S.A.G.). The results are shown in Table III, from which it will be seen that the concentration of S.A.B. is roughly four times that of S.A.G. and that 20% of this is acetylated, as compared with 34% of S.A.G. With full dosage of S.A.A.B. the concentration is about 30% more than that of S.A.G., and 24% is acetylated. Blood concentration with the half dose is almost as high as with the full. S.S. in full doses gave only one-half the concentration of S.A.G., and of this 29.3% was acetylated.

In addition to the blood estimations a differential white cell count was carried out before, during, and after treatment in the earlier part of each series; but as no significant changes were observed this practice was later abandoned.

The drugs are rapidly excreted in the urine, specimens of which were examined for free and acetylated drug at the same times as the blood estimations. These figures are given in Table III, together with comparative values for S.A.G. In a few cases urine was again tested for presence of S.A.B. and S.A.A.B. 24 hours after cessation of treatment, and was found to contain none with the former and only about 25 mg. (total) per 100 c.cm. with the latter drug. This had disappeared after a further 24 hours.

Toxic Symptoms.—Apart from slight anorexia in adults, especially at the beginning of treatment, possibly due to the large initial dose, none were observed.

Discussion

Although the rapid arrest of the diarrhoea and clearance of *Bact. sonnei* from the stools and rectal swabs of this series of cases, some of which had been persistently positive for a month or more, are striking, the occurrence of 24 cases in which there was bacteriological relapse is disappointing. Intermittency of excretion is obviously a troublesome problem for the hospital administrator who has to decide how many successive negative cultures are necessary before the patient can be considered free of infection.

Working with sulphapyridine in smaller doses than those employed in this series, one of us (Swyer, 1943) found that in a series of 57 cases no bacteriological relapses occurred after 3 days of the negative state, but among 35 controls 6 such relapses developed at periods ranging from 7 to 36 days after apparent clearance. Yannet and his colleagues (1942), on the other hand, reported that in an outbreak of 44 cases of Sonne dysentery in an institution, of which 27 were treated with sulphathiazole, the time needed to obtain bacteriological clearance was actually longer in the drug-treated cases than in controls. Although in the chemotherapy of intestinal infections in which the infecting organism is not found in the blood stream preference is given to drugs of a low degree of absorption, it is worthy of note that in the three series recorded here and the sulphapyridine series quoted above, the efficacy of the drug, particularly in clearing up carriers, was in direct proportion to the degree of absorption of drug from the intestine.

Summary

In the above series 179 patients suffering from bacteriologically proved Sonne dysentery have been treated with sulphanilylbenzamide, sulphanilylamidobenzamide, or succinyl sulphathiazole in doses governed by the patients' weight. The stools became formed, normal in colour, and free from blood or mucus in 24 to 48 hours in the S.A.B. series, and in 38 of these cases bacteriological clearance was obtained in an average of 1.8 days. Improvement in characteristics of stools was marked with S.A.A.B., but rather less so than with S.A.B. The average time for clearance was 3.6 and 2.5 days with full- and half-dosage respectively. With S.S. there was not a great improvement in stools, but clearance time was 2.4 days. Bacteriological relapse rates were: with S.A.B., 7.3%; S.A.A.B., full dose 15%, and half dose 3.3%; S.S., 34.6%.

We have to thank Messrs. Burroughs Wellcome for supplies of S.A.B. and S.A.A.B., and Dr. Prescott and his colleagues of the Wellcome Research Institution for information regarding the chemistry of and animal experiments with the drugs; Dr. R. Cruickshank and staff in the North-Western Group Laboratory, L.C.C.; and Mr. L. G. C. Maslen of the North-Eastern Hospital Laboratory for carrying out the large number of bacteriological, haematological, and biochemical investigations involved in this work. We are also grateful to members of the nursing staff for willing co-operation and help.

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HAEMOLYTIC DISEASE OF THE NEWBORN IN ONE OF DIZYGOTIC TWINS

BY

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The occurrence of haemolytic disease in both children of twins is well known (Snyder and Ford, 1941; Buhler, Seely, and McCormick, 1942), but the occurrence of the disease in one of the twins, the other being normal, is less well known. Macklin (1939) collected six such cases from the literature, but in three instances it seemed likely that both children were affected.

The aetiological connexion between the Rh factor and haemolytic disease, and the iso-immunization theory developed by Levine, Burnham, Katzin, and Vogel (1941) to explain this association, supersede the earlier theories of Macklin (1939) and Darrow (1938). Since this theory was formulated, twins affected with haemolytic disease have been described by Buhler, Seely, and McCormick (1942); the children were Rh-positive, as was the father, the mother was Rh-negative, and her serum contained Rh antibodies. Langley and Stratton (1944) reported a case in which an Rh-negative mother gave birth to twins, both affected and both Rh-positive. The maternal serum contained strong Rh agglutinins. Since then those authors have studied two further cases of twin pregnancy in which both children were affected. In each instance the maternal blood was Rh-negative and contained Rh iso-agglutinins, while all the children were of genotype Rh,rh.

Kariher (1943) reported a case of binovular twins whose mother was Rh-negative, her serum containing Rh antibodies; and while the unaffected child was Rh-negative, the affected child was Rh-positive, the diagnosis being made clinically and confirmed at necropsy. Potter (1944) has reported a double-ovum pregnancy in which one infant was normal but the other died of erythroblastosis on the second day of life. The maternal blood contained no anti-Rh agglutinins, but was Rh-negative; the living child was Rh-negative and the dead one Rh-positive.

The following case is described because it was studied clinically, pathologically, and serologically; moreover, it is of interest, as although only one child was affected both were Rh-positive.

Case Report

Mrs. X., aged 28, was delivered five years ago of an infant which has been completely normal; there was no history of abortions. When first seen in June, 1944, she was found to have a twin pregnancy, the estimated date of delivery being Aug. 20. Her general condition was satisfactory. Four weeks before the expected date she was delivered in hospital, after a normal labour, of a female child weighing 3 lb. 10 oz. and a male child weighing 4 lb.

Both children cried immediately and were vigorous. There were two placentae with separate amniotic sacs. Within six hours of birth the male child showed jaundice of a canary-yellow colour; 12 hours later this had increased in intensity. Twenty-eight hours after delivery the haemoglobin was 70% and the red cells 3,120,000 per c.mm. Vitamin K (5 mg.) was given intramuscularly. An attempt to give a blood transfusion was a failure. On the third day his haemoglobin was 42% and the red cells 1,850,000 per c.mm.

A further attempt at blood transfusion into the tibial bone marrow was unsuccessful, and the child died on the fourth day.

The female twin gained weight steadily, never showed any jaundice, pallor, or other abnormality, and on the fifth day haematological examination showed: haemoglobin 100%, red cells 5,000,000 per c.mm. When 6 weeks old she weighed 5 lb. 8 oz. A blood count showed haemoglobin 70% and red cells 4,000,000 per c.mm.

Pathology.—The relevant post-mortem findings were as follows: Naked-eye:—The skin and mucous membranes were deeply jaundiced (bright yellow). Blotchy haemorrhages were present in the lung, and there were a few small haemorrhages on the peritoneal surface of the gut. Bile was present in the intestine. The liver was enlarged and deeply jaundiced; the bile ducts were normal. The spleen was enlarged and firm. The brain was pale. The other organs showed no abnormality, except bile-staining.

Microscopic:—Many of the liver cells were vacuolated as by fat, and about half the remainder showed the clear watery appearance of glycogen infiltration. The reticulum framework was normal. There was widespread haemosiderosis. Bile thrombi were present in the intercellular canaliculi. Fairly numerous foci of haemopoiesis were found outside the sinusoids. These were mostly erythropoietic, though there were a few myelocytes. Primitive blood cells were also present in the sinusoids. There was marked leucopoiesis in the portal tracts, but there were also some erythropoietic foci. The general architecture of the spleen was normal. There was a fairly intense leucopoiesis, but only scanty erythropoiesis. The kidney showed subcapsular glomeruli incompletely developed; no haemopoiesis. The blood in the vessels of the liver and kidney contained many nucleated red cells.

Serology.—The Wassermann reaction in the mother was negative. The results of examination of the erythrocytes of children and mother were as follows:

	α	β	α_1	Anti-Rh	Anti-Rh_1	Anti-Rh_2	St	
Mother ..	+	−	+	−	−	−	+	A_1 Rh-neg.
1st child ..	+	−	+	+	+	−	+	A_1 Rh_1rh
Twins A (♂)	−	−	−	+	+	−	+	O Rh_1rh
Twins B (♀)	−	−	−	−	−	+	+	O Rh_2rh

The maternal serum contained a weakly active Rh antibody when first tested on the second day after delivery. When retested a month after delivery the Rh agglutinins were much stronger, and titration at 37° C. gave the following results:

Cells	Rh_1Rh_2	Rh_1rh	Rh_2rh	Rh_1Rh_1	Rh′rh	Rh″rh	Rh-neg.
Titre	64	32	16	64	4	0	0

Comment

The male twin was considered to be affected with haemolytic disease, the diagnosis being based on the clinical, haematological, and pathological data. The picture was that of a jaundiced newborn second child with a progressively severe anaemia in the absence of syphilis, sepsis, or haemorrhage, resulting in the death of the child. In the haematological data the normoblast count was unfortunately not recorded, but at necropsy the liver and kidney blood vessels contained many nucleated red cells. Prematurity, confirmed by the incomplete glomerular development and hepatic glycogen infiltration, rendered the interpretation of the histological appearances difficult. Haemopoiesis was, however, rather more intense than is usual with this degree of prematurity, and there were marked splenic leucopoiesis and excessive portal erythropoiesis. All the above findings are consonant with a diagnosis of haemolytic disease of the newborn.

The female child is considered to be healthy and unaffected by the haemolytic disease. Any suggestion that the above might be a mild case is negatived by the clinical and haematological findings.

The blood group Rh has been shown (Wiener, Sonn, and Belkin, 1944; Race, Taylor, Boorman, and Dodd, 1943; Race, Taylor, Cappell, and McFarlane, 1944) to consist of many subtypes, or, more correctly, the Rh gene is an example of multiple allelomorphism. In differentiating the types of Rh certain human sera are used. In this family the mother is Rh-negative (rhrh), while the affected child was of genotype Rh_1rh; the unaffected one is Rh″rh. It seems that the father is therefore Rh_1Rh''.

The maternal Rh antibodies are of the type anti-Rh′, and showed a considerable rise in titre during the first few weeks after birth of the child. It will be seen that while they react strongly with cells of a genotype similar to that of the affected child, they completely failed to react with erythrocytes of a genotype like those of the unaffected infant.

In previous cases described (Potter, 1944; Kariher, 1943) the unaffected child has been of the same group as the mother—that is, Rh-negative—and therefore quite incapable of reacting with Rh antibodies in the maternal serum. In this case, however, the child is Rh-positive, and it seems that the mother has failed to respond adequately to this stimulus—hence a normal child.

These observations afford substantial confirmation of the theory of Levine *et al.* (1941) that iso-immunization of the mother by "dominant hereditary blood factors" seems necessary for the child to be affected.

Summary

A case of haemolytic disease of the newborn is described in one of dizygotic twins, both being Rh-positive but of different genotypes.

The affected child became jaundiced within six hours of birth and died four days later, post-mortem findings confirming the diagnosis.

The Rh agglutinins detected in the maternal blood correspond to sensitization by the affected child, thus confirming the iso-immunization theory.

Our thanks are due to Prof. S. L. Baker, Dr. Ramsey, and Dr. J. F. Wilkinson for permission to publish this case. We are indebted to Dr. G. L. Taylor for a supply of St serum.

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Medical Memoranda

Impetigo treated with Sodium Penicillin Cream

In view of the present overcrowding in Service conditions the following case record may be of some interest.

On July 12, 1944, a rating complained of a rash on his face which was irritable, wet, and spreading. This on examination showed typical raised yellow crusts and was diagnosed as impetigo. Treatment was started by de-scabbing with warm eusol, thoroughly drying, and applying twice daily a paint consisting of acriflavine 1/2 gr., tannic acid 20 g., and water to 1 oz.

FIG. 1

In spite of treatment the condition continued to spread, and ung. hydrarg. ammon. dil. was tried without effect. On July 21 the patient was admitted to sick quarters, when Fig. 1 was taken.

Treatment with sodium penicillin cream was now begun. This consisted of equal parts of lanolin, cod-liver oil, and water, to which was added enough sodium penicillin to make a cream of 500 Oxford units per gramme. The cream was applied thinly twice daily after de-scabbing with warm eusol. The treatment was repeated for three days. On the second day of treatment there was a vast improvement, with at least 50% reduction of the lesions, the remaining areas being dry and showing signs of healing. On the third day of treatment all the smaller spots were healed and the larger ones were 25% of their original size. The spots on the pinnae were much slower in healing than those on the cheeks or neck. On the fourth day (July 24) all areas except the lower part of the right ear were healed. Two days after this the spot on the ear showed no change. Treatment was altered to ung. hydrarg. ammon. dil., and this spot cleared on July 31—i.e., 10 days after penicillin treatment had been started.

A Gram-stained smear of the lesions before sodium penicillin treatment showed a mixed infection of streptococci and staphylococci, also a few Gram-negative cocci and bacilli—type not recognized.

In all, 10 g. of cream was used, each gramme containing 500 Oxford units: total local dosage, 5,000 Oxford units. No parenteral treatment was given. This cream has also been employed with equal success on septic burn cases. As a face cream it is too soft, tending to run downwards.

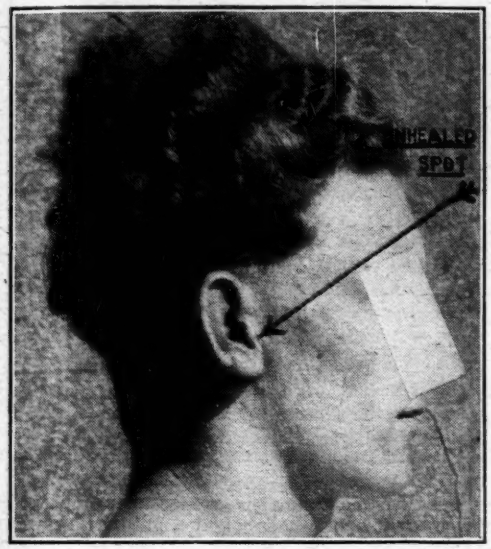


FIG. 2

The photographs show the patient before sodium penicillin treatment was begun and four days later, when all areas had healed except a small spot on the lower part of the right ear.

J. MUNRO GOLD, M.B., CH.B.
Surg. Lieut., R.N.V.R.

Carcinomatosis simulating Appendicitis

The following unusual case may be found to be of clinical interest.

A patient aged 50, suffering from cardiac disease, developed symptoms of appendicitis. Generalized central abdominal pain settled down in a tender right iliac fossa, with vomiting, rise of temperature, and slight leucocytosis. There was no history of rheumatism or of syphilis, and the Kahn blood and C.S.F. tests were negative. While further investigation was in progress a cardiac attack suddenly proved fatal, and a post-mortem examination revealed inflammation of the appendix due to invasion by secondary carcinoma. Both the internal and the external appendicular structures contained growths, while an intracaecal mass obstructed the appendix orifice. The coronary arteries were in bad condition, with thrombotic obstruction of the first part of the left. There was generalized arteriosclerosis.

Microscopical examination revealed inflammation and invasion by columnar-celled tubular carcinoma which was secondary to a recto-sigmoid carcinoma of small dimensions but showing unusually early spread. Blood-stained fluid was present in the peritoneal cavity and there were a few peritoneal metastatic implants.

Before the "appendicular" attack there had been no signs or symptoms of any intra-abdominal pathology. This is a type of case which serves to warn that a light-hearted prognosis given before an intra-abdominal operation can sometimes be rudely shattered.

I am indebted to Dr. R. Ström-Olsen, physician-superintendent of the hospital, for permission to publish this case.

Pathological Department, Runwell Hospital, Wickford. ARWYN ROBERTS, M.B., CH.B.

Reviews

TREATMENT OF SYPHILIS

The Modern Treatment of Syphilis. By Joseph Earle Moore, M.D., with the collaboration of Jarold E. Kemp, M.D., Harry Eagle, M.D., Paul Padget, M.D., Mary Stewart Goodwin, M.D., and Frank W. Reynolds, M.D. Second edition, third printing. (Pp. 717; illustrated. 38s. 6d.) London: Baillière, Tindall and Cox. 1944.

The second edition of *The Modern Treatment of Syphilis* by Joseph Earle Moore appeared in 1941, and was reviewed in these columns on Aug. 1, 1942; a second printing was carried out in May, 1943, when the chapter on intensive arsenotherapy of early syphilis was completely rewritten and a chapter on venereal disease control in the U.S. Army and Navy included, largely contributed by Frank W. Reynolds, whose name has been added to the list of collaborators; a third printing was carried out in March, 1944, and this is now available.

The section on intensive therapy has been enlarged from 7 pages to 18, and the bibliography much extended. This form of treatment has many advocates and appears to give a high rate of cure; nevertheless, the mortality from treatment, as shown in Table 126, would seem to preclude its routine use, since daily injections of mapharside over a period of 3 weeks give an estimated fatality rate of 1 in 400. Incidentally, the method recently employed in the U.S. Forces in this country, whereby daily injections of mapharside, plus a few injections of bismuth, are given over a period of 20 days, has been remarkably free from fatalities, due, no doubt, in part at least to the fact that patients have all been young and healthy men. It is surprising that no mention is made of penicillin—at least the word is not to be found in the index—for this drug was used by Mahoney in New York as long ago as December, 1943, and is now being employed on a large scale in both the American and British Forces for the treatment of early syphilis. The chapter on V.D. control in the Army and Navy is particularly opportune, and deals with the incidence of these diseases in the armed Forces in peace and war, their control in civil life and their relation to the armed Forces, treatment in the Services, prostitution, prophylaxis, education, punitive measures, and the V.D. control officer in this war. The section devoted to penalties imposed on U.S. Service men contracting V.D. is of special interest; it is generally agreed that such penalties are utterly illogical, do not appreciably reduce the incidence, and do tend to encourage concealment.

This is surely the most compendious and authoritative book in the English language on the treatment of syphilis; but methods are changing so rapidly that much of the contents of such books must be out of date before they reach the reader.

PERSONALITY AND BODILY MAKE-UP

The Physical Basis of Personality. By V. H. Mottram. (Pp. 124. 9d.) Harmondsworth; Penguin Books.

Here is a popular treatise on how much our personality owes to our bodily constitution, written on the whole in simple non-technical language and with that lucidity which is characteristic of the author. Bodily constitution must depend on hereditary endowments; and the cell, with its nucleus, its chromosomes, and its genes, is described. The ballet of the chromosomes and their illumination of the Mendelian theories of inheritance are vividly depicted, and attention is drawn to the advances made in mapping the chromosomes and the identification of the location upon them of unit factors in inheritance at least in the fruit fly. Mendelian transmission in man is illustrated by colour blindness and haemophilia, but it is pointed out that all such characteristics are not clear-cut, and features distinct in the parents may be blurred in the offspring—"one white, one black, and two khaki."

The influence on the personality of variations in the structure and function of the nervous system is pointed out, and Prof. Mottram devotes a long chapter to the effects of over- and under-activity of the endocrine glands, especially the gonads. He is, however, at pains to warn the reader against too easy acceptance of a physical as opposed to a psychic explanation of behaviour. As he says of the pituitary: "The

abnormal person may be morose, a bully, disobedient, a liar, and a thief directly because his pituitary is not exerting a due influence, or he may have become so because he feels at a disadvantage in coping with affairs in a world of well-endowed folks and compensates for his inferiority by these unpleasant reactions."

In a final chapter the author deplores the pessimistic material philosophy of the universe to which scientific acceptance of a physical basis of the personality would condemn us. Against this he himself rebels, and points out that the whole scientific structure of knowledge is based on the somewhat slender foundation of our senses. Science explains how but not why the universe works; its laws merely imply that phenomena may be observed as if they obeyed them; the true scientific attitude makes no claim that they do so behave. Prof. Mottram believes that mystical vision denies this true reality and that the "scientific personality" may not be "that quality or assemblage of qualities which makes a person what he is as distinct from other persons" (O.E.D.) but rather a "persona" masking a spark of that transcendental reality experienced by the mystics.

INTRACRANIAL ANEURYSM

Intracranial Arterial Aneurysms. By Walter E. Dandy. (Pp. 147; illustrated $2.50.) New York: Comstock Publishing Company.

This monograph has been based on 108 cases of intracranial aneurysm, accumulated during many years of cranial exploration—some diagnosed, some suspected, and others just discovered. Very detailed data on these cases are contained in tables at the end of the book. The rest is made up of a careful analysis of all aspects of the case material and a synopsis of much of the literature. After describing intracranial aneurysm in general Dr. Dandy devotes a large chapter to the features presented by aneurysms arising from each of the main arteries in turn, and then goes on to a lengthy description of pre-operative and operative techniques and results. The two chapters dealing with operative treatment are the most valuable of those written by Dr. Dandy, for they are superbly illustrated by artist's sketches and demonstrate vividly his technical achievements in this field. Dandy does not consider that all congenital aneurysms arise from medial defects at bifurcations, so well demonstrated by Forbus, but thinks that some begin at the point of origin of obliterated tributaries, and he thus explains the appearance of aneurysms distant from an arterial division. He gives an interesting account of some unusual symptoms of aneurysms, especially those which may follow lesion of the third nerve.

The most important section of the book, in which an original contribution to knowledge has been made, is that written by Dorcas Padget on the embryology and anatomy of the circle of Willis. She presents the results of study of the cerebral arterial tree of 17 embryos ranging from 3 to 43 mm., and co-ordinates her own observations on the circle of Willis in adults with those of earlier workers.

Notes on Books

Prof. A. D. GARDNER'S *Bacteriology for Medical Students and Practitioners*, which has appeared in its third edition (Oxford University Press; 8s. 6d.), is a little less slim than its predecessors, but still perhaps of unduly modest size for its purpose. Its clear and simple descriptions, illustrated by line drawings, are admirable of their kind, but some teachers prefer that the student should use a more ambitious and comprehensive textbook. A notable new feature in this edition is a chapter on disinfectants, antiseptics, and bacterial chemotherapy, which embodies conclusions from the author's own original work.

The issue of the *Proceedings of the American Philosophical Society* dated September, 1944 (Vol. **88**, No. 3), is devoted to a symposium on wartime advances in medicine, and also the text of the Penrose Memorial Lecture on "International Labour Organization Lessons for 25 Years," by Mr. Harold B. Butler, Minister from Great Britain at H.M. Embassy, Washington. The subjects of the papers include water requirements of castaways; blood derivatives and blood substitutes; the present status of penicillin in the treatment of infections; advances in the treatment of wounds; human problems in military aviation; immunization; and neuropsychiatry. The publications of the American Philosophical Society are issued from Independence Square, Philadelphia, Pennsylvania.

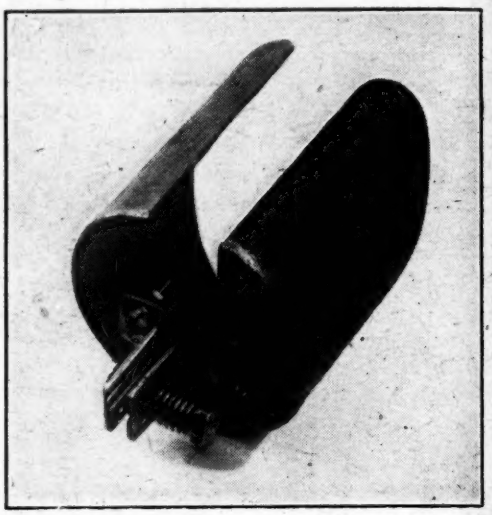
Preparations and Appliances

A PROTECTIVE SCREEN FOR ARC WELDERS

Fl. Lieut. J. NOEL JACKSON, M.B., B.S., writes:

Some of the constructional work in the establishment to which I devote part of my time as factory doctor is carried out by means of spot welding. For this the arc-welding method is used. I was impressed by the somewhat inadequate precautions taken against the radiation emitted by the arcs, and decided that arc workers should be provided with individual booths so that the eyes of other workers were protected from the harmful rays.

The first step to this end was to screen off each individual welder with thin sheet metal, finished with a dull black matt surface. As an additional safeguard I designed and made the hood shown in the accompanying photograph. The result is



crude but effective. The hood is clipped on to the welding-rod, which fits into one or other of the grooves shown on the bracket, depending on the thickness of the rod. I found that these two grooves and the employment of a nut and bolt provided all the adjustment necessary for use with the varying thicknesses of arc-welding rods. It should be remembered that the arc-welding rod is burnt away in use and that this hood has to be moved backwards. Although the hood itself becomes quite hot, it can be readily moved by the operator, who wears very thick gloves.

The hood is roughly cylindrical, but the open end is cut off at an angle. After watching many operators, I found that some of them adjust the rod at an angle of about 45° to the surface on which they are working. The rather broad slit along the top of the hood enables the operator to see the point of the rod. This also allows an escape of the rays, but only in an upward direction away from other workers, and backwards in the direction of the operator himself, who is, however, holding a shield, so that the rays do him no harm.

Civilian patients likely to be detained in hospitals and sanatoria for long periods may be given the opportunity to pursue educational courses. The Ministry of Education has informed education authorities that a course of study or craft work can contribute materially to accelerating the recovery of patients, and the Minister believes that the suggestion will be considered by authorities with every sympathy. It would be for the hospital or sanatorium authorities to decide, on the advice of the medical officer in charge of the case, whether a patient should be encouraged to pursue any such course. In suitable cases the patient will be put in touch with the Chief Education Officer for the area. This scheme does not apply to members of H.M. Forces detained in hospital. They are the responsibility of the Service Departments and are covered by the War Office Correspondence Scheme until discharged from the Forces on medical grounds. If they are retained in hospital after such discharge they become civilian patients falling for consideration under this scheme, except that they may complete any particular correspondence course for which they were enrolled under the War Office scheme.

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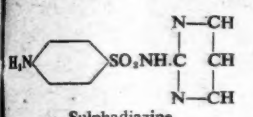
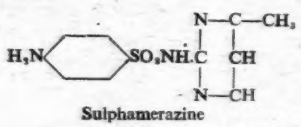
SULPHAMERAZINE: A NEW SULPHONAMIDE

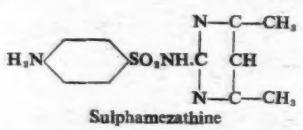
The output of new sulphonamide compounds is less brisk than was the case some years ago, and there is reason to suppose that the antibacterial activity of this series of compounds will not be significantly increased by future discoveries. Nevertheless, one new compound—sulphamerazine (or sulphamerizine)—has been the subject of much work in America, and it appears likely to become a valuable addition to the clinical armamentarium. Sulphamerazine is 2(*p*-amino-benzene sulphonamido)-4 methyl pyrimidine, and its relation to sulphadiazine and to sulphadimethyl pyrimidine (sulphamethazine or sulphamezathine) is shown by the following formulae:



Sulphadiazine



Sulphamerazine



Sulphamezathine

These three compounds have approximately the same antibacterial activity *in vitro* or in experimental infections of mice, but their pharmacological properties vary somewhat; the choice between them depends chiefly on differences in absorption, blood concentration, and excretion.[1]

Sulphamerazine is more quickly absorbed than sulphadiazine and more slowly excreted than sulphamezathine, so that its concentration in the blood rises more quickly and is sustained longer than in the other two compounds. A dose of 3.5 g. to a 150-lb. man by mouth produces an average blood concentration of 8 mg. per 100 c.cm. in 2 hours, and 10 mg. in 4 hours; a level greater than 6 mg. is maintained for 24 hours, and one greater than 3.5 mg. for 48 hours. An effective blood level is reached more quickly with sulphamerazine than with sulphadiazine, and there is less need in acutely ill patients to start the treatment with an intravenous injection of the sodium salt in order to avoid delay while the compound is being absorbed from the intestine. Since sulphamerazine is retained in the body to a greater extent than sulphadiazine it is rather more toxic, dose for dose; but when the higher blood concentration is taken into account there is no significant difference between them. An average blood concentration of 27 mg. per 100 c.cm. can be tolerated by monkeys for long periods (provided that sufficient fluid is given to prevent renal blockage); but one of 32 mg. per 100 c.cm. is toxic, causing damage to the kidneys, depression of the activity of the bone marrow, and possibly degeneration of the liver. However, these blood concentrations are much higher than what is needed for clinical purposes, and in actual practice these toxic effects are not to be expected. In particular, the occurrence of peripheral neuritis or damage to the nervous system should be extremely rare, or completely unknown, judging by animal experiments; sulphamerazine is less damaging to the nervous system of the chick than either sulphadiazine or sulphathiazole. In man 9% to 15% of the drug in the body is in the conjugated form, and so is 37% to 50% of the drug in the urine. Urinary excretion accounts for 40% (average) of the drug after 24 hours, and for 58% after 48 hours, following a single dose of 3 g. by mouth; the final total recovery is 84% to 100%. The concentration in the cerebrospinal fluid is about 0.3 to 0.7 of that in the serum. The ratio between the concentration in the serum and that in the red blood corpuscles varies greatly, but averages about 3 to 1, and the concentration in the whole blood is about three-quarters of that in the serum.[2,3] The toxic symptoms caused in man are much the same as those caused by sulphadiazine.[4]

As stated above, the toxicity of sulphamerazine for the body as a whole in animals is about the same as that of the other two compounds when measured in terms of equal blood concentrations. The toxicity for the kidneys, however, varies widely in the different cases. In animals sulphamezathine never damages the kidney, no matter what the blood concentration may be. Sulphamerazine may cause damage after high doses, owing to blockage of the urinary passages by crystals of the drug or of its acetyl derivative, but it is much less toxic in this respect than in sulphadiazine. These differences in respect of the kidney seem to depend upon the different solubilities of the compounds. In acid urine sulphadiazine is the least soluble of the three and sulphamezathine the most soluble: thus at *p*H 6.0 (acid) the solubility of sulphadiazine is 17 mg. per 100 c.cm., of sulphamerazine 38 mg., and of sulphamezathine 69 mg., while the solubilities of their acetyl derivatives are respectively 30 mg., 39 mg., and 67 mg. per 100 c.cm. However, if the urine is made neutral or slightly alkaline the solubilities of all the compounds are much increased, and the differences between them are much less. Thus at *p*H 7.6 (faintly alkaline) the solubility of sulphadiazine is 139 mg. per 100 c.cm., of sulphamerazine 158 mg., and of sulphamezathine 144 mg., while the solubility of the acetyl derivatives ranges from 176 to 210 mg. per 100 c.cm. Accordingly it is found in animal experiments that, if the urine is kept alkaline by giving alkalis by mouth, none of the three compounds has injurious effects upon the kidney.[1] Though it is not possible to do analogous tests on man, the clinical experience is in general agreement with these experimental results. Sulphadiazine, as is well known, is apt to lead to blockage of the urinary passages, but if the urine is kept alkaline very large doses can be given with impunity. Sulphamerazine has caused

[1] Schmidt, L. H., Hughes, H. B., Badger, E. A., and Schmidt, I. G., *J. Pharmacol.*, 1944, **81**, 17; Schmidt, L. H., Sesler, C. L., and Hughes, H. B., *ibid.*, p. 43.

[2] Murphy, F. D., Clark, J. K., Flippin, H. F., and Patch, *Amer. J. med. Sci.*, 1943, **205**, 717.

[3] Goodwin, R. A., jun., Peterson, O. L., and Finland, M., *Proc. Soc. exp. Biol., N.Y.*, 1942, **51**, 262.

[4] Peters, B. A., and Easby, M. L., *British Medical Journal*, 1943, **2**, 230.

renal symptoms in 6 out of about 400 reported cases. Sulphamezathine seems very rarely to cause urinary lesions, although one case of transitory urinary suppression and one of haematuria occurred among 77 patients treated by Peters and Easby.[4] The other toxic symptoms caused by sulphamerazine in man are much the same as those caused by sulphadiazine.[5]

The dosage recommended for sulphamerazine (e.g., in lobar pneumonia in adults) is an initial dose of 3 to 4 g., followed by 1 g. every 6 hours until the temperature remains normal for 48 hours; then the dose is reduced to 0.5 to 1 g. every 8 hours and the drug is discontinued on the fifth to eighth day. According to the clinical experience reported so far sulphamerazine is therapeutically very similar to sulphadiazine. Thus Gefter and his colleagues[6] treated 45 patients with meningococcal infections, giving on the average 56 g. in 9½ days; their mortality rate was 6.7%; in a previous series treated with sulphadiazine their mortality rate had been 12.5%. Lepper, Sweet, and Dowling[7] treated 22 cases of meningococcal meningitis with sulphamerazine and 22 alternate cases with sulphadiazine; in each series the mortality rate was 9.1%. Flippin and his co-workers[8] treated 80 cases of lobar pneumonia with sulphamerazine and 80 alternate cases with sulphadiazine. Apart from a slightly quicker defervescence among the patients treated with sulphamerazine the clinical results of the two treatments were practically indistinguishable as regards both therapeutic efficiency and freedom from toxic reactions. Six of the patients on sulphamerazine and eight of those on sulphadiazine died. Experience gained during the treatment with sulphamerazine of 116 cases of miscellaneous infections has also been reported by Hall and Spink[9]; they found its therapeutic activity and toxicity to be similar to those of sulphadiazine, a lower dosage being required to produce the same result. It was less toxic than sulphanilamide, sulphapyridine, or sulphathiazole, but sulphathiazole appeared to be more effective in the treatment of staphylococcal infections. Similar experiences have been reported by Hageman, Harford, Sobin, and Ahrens.[10] Anderson, Oliver, and Keefer[11] found that sulphamerazine was as effective as sulphadiazine and that the total dose required was only one-third to one-half as great.

Altogether it may be concluded that sulphamerazine is closely similar to sulphadiazine in its toxicity and therapeutic effectiveness, and that its chief advantage is the lower and less frequent dosage needed for its use; this feature seems to have recommended it strongly in the Australian Armed Forces, no doubt because less frequent administration represents a great saving of the labour of the nursing staff. The compound is not yet available in this country for general clinical use, and presumably it may remain unobtainable until the end of the war. But when supplies do come to hand sulphamerazine is a compound which will deserve careful clinical trial. Provided that the price is not too high it might well prove to the most desirable sulphonamide compound for gene medical use.

[5] Clark, J. K., Flippin, H. F., and Murphy, F. D., *Amer. J. med. Sci.*, 1943, **205**, 846.
[6] Gefter, W. I., Rose, S. B., Domm, A. H., and Flippin, H. F., ibid., 1943, **206**, 211.
[7] *J. Amer. med. Ass.*, 1943, **123**, 134.
[8] Flippin, H. F., Gefter, W. I., Domm, A. H., and Clark, J. H., *Amer. J. med. Sci.*, 1943, **206**, 216.
[9] *J. Amer. med. Ass.*, 1943, **123**, 125.
[10] Ibid., p. 325.
[11] *New Engl. J. Med.*, 1944, **230**, 369.

SURGICAL TREATMENT OF INTRACEREBRA HAEMORRHAGE

Elsewhere in this issue Rowbotham and Ogilvie report t cases in which a large intracerebral collection of blo was successfully aspirated and the patients, who had be hemiplegic, made a full recovery. In both the presume cause of the bleeding was rupture of a congenital intr cranial aneurysm. It is important that both patients we young, for a congenital defect in the tunica media is n the only cause of intracranial aneurysms. The authors d well to discount syphilis as a cause of these aneurysms and they are not alone in this—but there will be few wh agree with them that they are not caused by any oth degenerative process, for some authorities consider th arteriosclerosis is the most common cause of intracran aneurysms,[1] while mycotic aneurysms accounted for intr cranial haemorrhage in 5 out of 120 cases described b Dandy.[2] Dandy has recently questioned Forbus's[3] contr tion that all congenital aneurysms arise at the bifurcati of vessels, for he considers that some arise along the leng of a vessel at the point of origin of an obliterated and v tigial offshoot of the parent trunk. This conception wo explain the appearance of some aneurysmal sacs at a sh distance from a bifurcation of the branches of the cir of Willis.

This emphasis on the exact cause and site of intracran aneurysms has practical importance as well as theoreti interest, for although aspiration of an intracerebral haem toma may remove the immediate danger to life and relie many of the symptoms which it has produced, the su geon's main concern should be to eradicate the cause the bleeding. This is a much more difficult undertaki than removal of the extravasated blood. In his rec monograph Dandy[2] has described the results of operati treatment of the aneurysms themselves. It has for ma years been recognized that the patient is more likely survive if, as in the present two cases, the aneurysm r tures into the cerebral substance, for the resistance this tends to limit the amount of bleeding. After catastrophe a state of equilibrium between the press in the aneurysm and its surroundings is established, if patient is fortunate. With the high intracranial press which has developed as a result of the mass of blood papilloedema slowly appears and increases in degree, the delay in the papilloedema does not necessarily indic a delayed rise in intracranial pressure. When the state equilibrium is reached it is a comparatively simple mat to aspirate the intracerebral haematoma, but Dandy ur that after this an attempt should be made whenever p sible upon the aneurysm itself. In the past six years has operated upon 36 of these cases and has succeeded finding and dealing with the aneurysm in 30 of them.

[1] Strauss, I., Globus, J. H., and Ginsburg, S. W. (1932). *Arch. Neurol. Psych* Chicago, 1932, **27**, 1080.
[2] *Intracranial Arterial Aneurysms*, 1944, Ithica, New York.
[3] *Johns Hopk. Hosp. Bull.*, 1930, **47**, 239.

as claimed a cure in 20 of these (70%), but 9 of his 36 atients have died. These results are laudable, for they hould be judged against the technical difficulties which re encountered in this field of neurosurgery. Dandy takes he view that the aneurysm must be isolated from the circle f Willis, and does not advise ligation of the internal carotid rtery alone, whether the aneurysm is above or below the linoids. His reasons for this are that the results are both ncertain and disappointing. When the aneurysm is below he clinoids the affected vessel should be clipped distal to he aneurysm and the internal carotid artery ligated in the eck. Matas's[4] test—trial occlusion of the artery in the eck for 10 minutes—should always be carried out before his course is adopted. When the aneurysm is localized ntracranially and is accessible to intracranial operation ne of many different methods of ablation, each of which epends upon the situation and type of aneurysm, may be dopted. These involve tying or clipping on each side of he aneurysm, coagulating it, or actually removing it com-letely. McConnell[5] successfully introduced a portion of uscle into the sac and secured complete thrombosis of he aneurysm, while Dott[6] applied muscle to the hole in he sac and so cured the bleeding without disturbing the neurysm. Dandy advises electrocoagulation as well as ntroduction of muscle in order to increase the speed of oagulation.

It is not many years since Symonds[7] paved the way to the orrect diagnosis and location of intracranial aneurysms, nd now the surgical cure in suitable cases is an estab-shed fact. Unexplained intracranial haemorrhage in oung patients does not now necessarily carry a gloomy rognosis or prospects of an invalid existence. Even so, effect a very slight improvement in the mortality from ese aneurysms requires great skill, for it is hard to say hich is the most difficult—to locate the site of the causal neurysm or to render it harmless after it has been ecognized.

NEURONE AND MIND

n a stimulating address to the Royal Society of Edin-urgh[8] Prof. R. J. A. Berry has expounded the general esis that the neurone is the organ of the mind, and—no eurone, no mind. Prof. Berry sets out to show this by king such simple measurements as the size and weight of e post-mortem brain. Between birth and the age of 6 the rain approximately quintuples in size and weight; between irth and maturity it adds to its weight by roughly 1,000 rammes. Most, though not all, of this increment is due the myelinization of the cerebral axones of the white edullary centre. When the mentally defective are com-ared with the normal the mean weight of the defective rains becomes smaller and smaller as more and more evere degrees of defect are studied. Within the range of e normal there is enormous variation. As a group the rgest brains were shown by university teachers; the allest averages within normal range were shown by the iftless and thriftless, criminals, and reformatory boys. ze and weight, though closely related to intellectual evelopment, can be imperfect guides. Some defectives can have heavy brains, the abundant weight being due to an excess of glial tissue.

It has been estimated that the normal healthy brain contains about 14,000 million cells. The possible number, variety, and complexity of neuronic arcs that could be developed on such a structural basis are sufficient to explain the whole range of human behaviour. But how can one conceive of this immensely complicated organ operating in its functions of memory, deliberation, and action? If we think of the primitive nervous system being developed out of the reflex arc an essential part in attaining a greater complexity of behaviour is played by the interposition of a great array of cells between the receptor and effector parts of the arc, with a resulting temporal delay. These intervening cells are involved in actions of many kinds and over many years, so that the experiences of the past can be expected to have an influence on the behaviour of the present. Different workers have different ideas of how this happens. Herrick has spoken of "a complex web of interrelated associational cortical neurones, technically known as an 'engram.' Once these cells have been activated they remain charged with a potential energy. When reactivated in recall the reserve energy of these engrams is released . . . and we have thoughts of previous stimuli—that is, memory of past events." Importance is attached not only to the mere existence of engrams but also to the proper order and sequence of their activation.

Prof. Berry illustrates the practical use of such a theory to explain the phenomena of dreams. In sleep there is a temporary inactivity of certain of the most recently evolved cells of the neo-cortex. Engrams become incomplete; there is no barrier to stop the energy of still active cells of other engrams overflowing into arcs to which they do not belong. The result is a commingling of distorted bits of recent and remote memories, with the fantastic effects which we all know. Berry considers that this neuronic theory of cerebration excludes the possibilities which have been mooted in different quarters, of dreams of the future and of thought transference. However this may be, it provides a schema of great potential usefulness for the understanding of such various observations as drug effects, effects of local brain lesion, and Pavlovian conditioning. It will by some be regarded as an over-simplification; but simple theories are always to be preferred when it is only simple facts that are known with precision.

INTESTINAL ANTISEPTICS

Intestinal infections are usually divided into two categories: typhoid and paratyphoid, in which the local intestinal lesions are accompanied by systemic invasion; and dysentery, cholera, and the bacterial food-poisonings, where the infection is confined to the gut. So far no drug of the sulphonamide series has proved effective in shortening the chemical course of enteric infections, although amelioration of the toxaemia has been claimed. The failure to cure or to eliminate the infecting organism may be attributed partly to the pathology of typhoid, which makes the organism in the lymphoid tissue and in the gall-bladder rather inaccessible to attack, and partly to the natural resistance of the typhoid–salmonella family to the bacteriostatic action of the sulphonamides. Thus salmonella gastro-enteritis, although a self-limited and localized disease of one or two days' duration, is frequently followed by a convalescent carrier state which is quite unsusceptible to sulphonamide therapy. Therefore the search for new drugs that may prove effective against this group of intestinal pathogens still goes on. Unfortunately it is not possible with these organisms to reproduce in animals a

[4] *J. Amer. med. Ass.*, 1914, **63**, 1441.
[5] *Zbl. Neurochir.*, 1937, **5**, 269.
[6] *Edinb. med. J.*, 1933, **40**, 219.
[7] *Guy's Hosp. Rep.*, 1923, **73**, 139.
[8] "Some Recent Advances in the Study of the Brain as the Implement of Mind," *Proc. roy. Soc. Edinb.*, Section B, 1944, **62**, 86.

disease syndrome similar to the natural infection in man, and the experimentalist has to rely on test-tube results in assessing the value of new preparations against the intestinal pathogens. In this way Schweinburg and Yetwin[1] have tested a number of new sulphonamides prepared from drugs of known potency—sulphamerazine, sulphadiazine, and sulphathiazole—by the addition of a phthalyl radicle. Their results showed that *in vitro* sulphamerazine and phthalyl sulphadiazine were more effective than sulphadiazine against the dysentery organisms but less so against the typhoid-paratyphoid bacteria. The addition of the phthalyl radicle to sulphamerazine decreased its activity against all intestinal pathogens, while phthalyl sulphathiazole had no advantages over sulphathiazole itself. The possibility of using enteric-coated tablets of the more active sulphonamides—e.g., sulphathiazole and sulphadiazine—to ensure a local antiseptic action in the lower reaches of the bowel seems to be worthy of more consideration.

In the case of the dysenteries there is now abundant evidence that Flexner infections respond well both clinically and bacteriologically to most sulphonamides, which is in line with the greater susceptibility of the Flexner group of organisms in the test-tube. However, in view of the greater clinical severity with considerable dehydration in Flexner infections, preparations which are not readily absorbed—e.g., sulphaguanidine or succinyl sulphathiazole in doses of 9 to 12 g. daily for 5 to 7 days—are preferable to others which, being absorbed, may have deleterious effects on the kidney. On the other hand, Sonne dysentery, which is the prevalent infection in this country and which, if notifications are reliable, is greatly on the increase, does not respond to sulphaguanidine unless the drug is given early in the infection or in large doses—e.g., 30 g. in the first 2 days followed by 7.5 g. daily. In the cure of the frequent convalescent Sonne carrier succinyl sulphathiazole in doses of 10 g. daily for 5 days has been found effective, but in our present issue Swyer and Yang rank it behind two new drugs—sulphabenzamide and sulphamidobenzamide, which have been found active *in vitro* against both the enteric and dysentery groups of organisms. The absorbability of these new drugs is intermediate between succinyl sulphathiazole and sulphaguanidine and the other common sulphonamides, and in moderate doses given according to weight they have proved remarkably effective in the bacteriological cure of Sonne carriers. Thus, with sulphabenzamide only 3 out of 41 cases (7.3%) and with sulphamidobenzamide 12 out of 112 cases (10.7%) were not cured, or relapsed after the initial course of treatment. A number of the bacteriological "relapses" occurred after 4 or more consecutive negative rectal-swab examinations, and it is difficult to be sure if they were due to reinfection or to intermittency of excretion of the organism. Intermittency of excretion has become rather a bogy for the hospital administrator, who is naturally unwilling to retain a young child in hospital for some weeks after that child is clinically well. The patient with Sonne dysentery admitted to hospital represents only a small fraction of all infected children in the community, and it seems irrational to isolate one child in surroundings which may be prejudicial to its health while the other 99 are free to spread the infection. With Sonne dysentery, a widespread endemic infection, 2 or 3 negative cultures before discharge are probably adequate unless the child is returning to a residential institution or day nursery, when 4 to 6 successive negative examinations may be required. Control of dysentery in a community depends on a high standard of personal hygiene, an appreciation by the practitioner of the frequency of the mild atypical case and the contact carrier, and the use of an intestinal antiseptic that will ensure bacteriological as well as clinical cure of the infection.

[1] *New Engl. J. Med.*, 1944, **230**, 510.

NEW INTERNATIONAL SANITARY CONVENTIONS

Drafted and sponsored by U.N.R.R.A., two new International Sanitary Conventions, amending those at present in force, came into operation on Jan. 15. By that date the signatures of 17 of the Governments of the United Nations were affixed to the new Conventions in Washington. Even before the war it was recognized that advances in preventive medicine had rendered the present Conventions obsolescent—that governing sea and land traffic dating from 1926, and that on air travel from 1933. The development of vaccination against yellow fever in particular has required changes in the yellow-fever clauses of the air convention, and the British Interdepartmental Committee on the Control of Yellow Fever had already recommended drastic alterations in these provisions: these changes have been adopted in the areas in Africa concerned. Moreover, the migrations of large numbers of people expected after the war required special consideration, although the health measures needed for the organized movement have been dealt with by a special agreement between the Governments concerned, which it is hoped will shortly be signed. The International Office of Public Health in Paris—the technical body charged with the revision of the Sanitary Conventions—being then in enemy territory, U.N.R.R.A. was entrusted with the work of revision, and early in 1944 its expert Commission on Quarantine, under the chairmanship of Dr. P. G. Stock of the Ministry of Health, completed the work in a remarkably short time. The drafts of the revised Conventions were approved in principle by the Council of U.N.R.R.A. at its second session in Montreal in September, 1944, and were referred to the standing technical Committee on Health for final revision. Meanwhile Paris has been liberated, and negotiations to safeguard the position of the Paris office and to ensure its collaboration with U.N.R.R.A. were successfully undertaken. Both the English and the French texts of the revised Conventions are equally authentic.

U.N.R.R.A., as a temporary measure until a full international sanitary conference can be called, will administer the new Conventions and receive and transmit intelligence about epidemics. Such information will not, as hitherto, be confined to occurrences of the five "Convention" diseases—plague, cholera, yellow fever, typhus, and smallpox—but signatories are now under an obligation to notify U.N.R.R.A. immediately of the presence and course of any epidemic disease which may constitute a menace to other countries by its potential spread across frontiers. Signatory Governments also undertake to pass on as regularly as possible statistics of all notifiable diseases occurring in their countries; U.N.R.R.A. will in turn distribute its information to the Governments concerned. In addition the Conventions make a new departure in that U.N.R.R.A. is entrusted the delimitation of zones in which yellow fever is endemic, and the setting up of approved standards of vaccine against yellow fever. Action has already been taken in these matters by the Quarantine Commission of U.N.R.R.A. The Conventions also recommend the adoption by Governments of model international forms of certificates of immunization against various diseases.

The next session of the General Medical Council will open on Tuesday, Feb. 27, at 10 a.m., when the President, Sir Herbert Lightfoot Eason, will take the chair.

ELIMINATION OF CROSS-INFECTION
AN EXPERIMENT

BY

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The treatment of illness in hospital rather than in the home has many advantages. It also has one serious drawback. This is the risk—sometimes slight, but in some classes of patient genuine and ever-present—of acquiring a fresh infection. To suppose that the great reforms of the latter part of the nineteenth century did away with this risk or even reduced it to minor proportions is a grave mistake. . . . The danger is greatest among children." (Leading article, *B.M.J.*, 1944, **1**, 497.) "We must ask ourselves whether, even if we had the most perfect hospitals and nursing, we would wish to keep these infants for many weeks undergoing treatment, and whether that is economically and socially a sound procedure." (Dr. Donald Paterson, *Proc. roy. Soc. Med.*, 1941, **35**, 49.)

All those whose work lies among infants and children in hospitals indeed realize to the full the truth of these statements, and the kind of surgical cases with which we personally have to deal are peculiarly liable to cross-infection in hospital wards. Many years ago we realized the truth of this in respect of cleft-palate cases, in which the upper raw nasal surface is just a trap for all types of infectious organisms floating about a hospital ward, and from which cross-infection, dehiscence, and sloughs are apt to ensue. Similar cases are hypospadias, angiomata, and syndactylism; for we are firm believers in early operation in all of these—for the reasons that in infancy the patient is fully controllable by the mother, one has a comparatively passive subject to work upon, and the child grows up without any knowledge of deformity or disfigurement (a very important psychological point). All congenital deformities tend to get worse rather than better with age, and if left until later childhood the mother has lost control and there are only fear and non-cooperation on the part of the patient—factors which make plastic surgery infinitely difficult.

We determined long ago to undertake no such cases in hospital wards. For many years all such infants have been nursed by their mothers either in their own homes or elsewhere. This of itself eliminated a very large amount of cross-infection—possibly 75%—but it was not entirely satisfactory. Conditions in some of the homes were far from desirable, and occasionally some other member of the family would come home with a bad cold, resulting eventually in an infection of the baby. The parents of these babies were for some inscrutable reason nearly always impecunious, with all the resulting restrictions of facilities for nursing; they rarely had telephones, and a single room in a nursing home was quite out of the picture. Yet these babies were worth making into useful members of society. We had had very many encouraging results—and also some reverses—for once a palate, for instance, has failed, the child is often doomed to take a very back seat in life, no matter how well developed he may be mentally or physically. We seemed to have reached an impasse. We felt that there was no reason why any cleft-palate, hare-lip, or hypospadias operation for infants should ever fail, provided that the right conditions could be obtained for their treatment. What we felt was necessary was some place where mothers could stay with their babies in peace, cleanliness, and happiness, and with reasonable facilities for treatment, and where extraneous sources of cross-infection could be rigidly controlled. We sought in vain for any support for such a scheme from private, official, and philanthropic sources. Then, on the advent of social security hospital benefits in New Zealand, we thought we saw our way to do what we wanted to do for these babies. But we did not want a hospital staffed in the usual way; we required, and insisted, that each mother must nurse her own baby with as little extraneous interference as possible. But would the Government make benefits available to these mothers? After full investigation they did; and on behalf of the mothers and babies we wish to express our thanks to the New Zealand Health Department for their wise and valuable assistance.

The Scheme in Operation

Being assured that the greater part at least of the expenses of maintenance would be found, we obtained a suburban house with a reasonable-sized garden, and proceeded to convert it into something like what we considered was necessary to fill the bill. We now have accommodation for 12 mothers and babies. Each mother with her baby has a room to herself; some of the rooms are quite small, but all conform to the Health Department's requirements. Each has a large window facing the sun, and is daintily furnished—not at all like a hospital ward. We invite the mothers to come and nurse their babies just as if they were at home. No charge is made for maintenance, and only very occasionally are parents themselves able to pay any fees at all for treatment (some hospital boards pay very modified fees). A large workshop in the garden was converted into an isolation ward, but we have had to use it only once as such—for a mild case of chicken-pox, which did not spread. We have also built a small but very efficient theatre block in the garden. We are therefore fairly self-contained. The scheme has been in operation for three years, so that we can with fairness now perhaps estimate its value. The clinic has been full nearly the whole time, and so far there has not been a single case of cross-infection, local or general, not a single slough, not a single case of dehiscence. The worst that has happened has been the loss of a suture, and that only rarely, and no sign of what Sir W. de Courcy Wheeler called that other "bugbear of cleft-palate surgery—hyperpyrexia." There has been no failure with any cleft-palate or hypospadias case, nor loss of graft for angiomata or syndactyly. Post-operative antiseptics or sprays (beyond a little weak argyrol in the nose occasionally) are not used at all, so absence of infection cannot be due to their use. We do not claim to have reached perfection, for we are always endeavouring to better our methods and technique, but it is fairly certain that if 12 beds in a children's ward had been occupied with similar cases for three years, a considerable proportion would have been badly infected, either locally or generally, and therefore have been more or less failures. We believe that in some hospitals the infection rate is very high, though figures are difficult to obtain, and there was early last year much correspondence in the *Journal* about hospitals being dangerous places for infants. We therefore think that our experiment has justified itself, and we can claim to have so far eliminated the danger of hospital cross-infection in this class of case.

Other points to be noted as contributing to such results are:

1. All dressings are done in the theatre, under "theatre conditions."
2. Each baby is seen practically every day.
3. No mother or baby is permitted to come if either has a cold, and visitors are not encouraged.
4. Very great attention is paid to the feeding of the babies and to their weights. A strict rule is, "No gain in weight, no operation."
5. Mothers are encouraged to take their babies out in "prams" and to nurse them out of doors in the sunshine between operations.
6. Mothers must be kept happy. A disgruntled mother means a miserable and discontented baby, for whom any plastic operation would probably fail. This is possibly the hardest job of all, for one such mother may upset all the others. If she cannot be cured quickly (in two or three days at the most) we send her home; she comes back in a quite different frame of mind. Mostly, however, mothers are very glad of the rest and change and freedom from household cares, and co-operate splendidly in the work.

Comment

Prof. Grey Turner has recently stated (*Journal*, 1944, **2**, 92) that in Newcastle-upon-Tyne he also used to treat as outpatients many acute surgical conditions in infants as well as hernias and cleft palates—that is to say, he relied on the nursing of the mothers. He further states: "I believe that in most cases these little ones have a better chance if dealt with in this way, for they go back to an environment to which they are accustomed, and . . . receive the undivided attention of persons with whom they are thoroughly familiar." We think, though, that our plan of keeping mother and child

together under as near ideal conditions as possible is an improvement—a step forward that is reflected in our greatly improved results during the past three years. An infant's environment is, and should be, its mother. We are using sedative drugs less and less, and often none at all. A baby is expected to be back on spoon feeding within eight hours of any operation.

The rationale of the whole scheme is based on the fact that a baby is born with a certain degree of passive immunity to its mother's organisms, and that it acquires further immunity in the next few months; and we endeavour to expose it to no other organisms whatever.

Since writing the foregoing account the Minister of Health has announced that in future his Department will defray the cost of treatment and maintenance of mothers and babies in our clinic.

A FACULTY OF OPHTHALMOLOGISTS

The following statement outlining a plan for the formation of a Faculty of Ophthalmologists has been received from the Council of British Ophthalmologists, whose honorary secretary is Mr. Frank W. Law, F.R.C.S.

There is obvious need for an authoritative and representative body to guide ophthalmologists through the intricate and important problems which are to be settled in the near future, to represent their interests to the State, and to co-ordinate their efforts, so that in the coming reorientation of the medical service of the country the greatest good accrues to the people, while at the same time the interests of the profession are preserved. It is generally accepted that, although circumstances may necessitate that changes be gradual, fundamental principles are now being evolved which will profoundly affect the medical profession and the community at large. So far as the ophthalmic services are concerned, the alternative to having policies imposed by others is to establish an authoritative body which will be able to initiate and criticize policy so that the interests both of the profession and of the community may be furthered.

The need for a body of this sort became apparent towards the end of the last war, and on the initiative of certain leading ophthalmic surgeons a general meeting of British ophthalmologists was held on May 2, 1918, at which it was decided to establish a Council of British Ophthalmologists, consisting of the Presidents and Past Presidents of the Ophthalmological Society of the United Kingdom and the Section of Ophthalmology of the Royal Society of Medicine, together with nine members elected annually, four each by the Councils of these bodies and one by the Council of the Oxford Congress. Later the Master and the Past Masters of the Oxford Congress were added as permanent members and the number of elected members was increased.

The functions of the Council, as stated in its rules, were "To take cognizance of, and to act in, all matters of ophthalmic interest arising in connexion with national industries and public services, and to initiate or to advise concerning movements which have for their object the welfare of the eyesight of the community." The Council of British Ophthalmologists has done much valuable work in many different fields—political, educational, and scientific; but recently it has been felt that this Council would have more weight and authority if it were more directly representative of the whole body of ophthalmologists in the country.

Some of the immediate problems which require examination and early solution are of great moment. The White Paper outlining the Government's proposal for a National Health Service deals vaguely with an ophthalmic service, although it is clear that it is the Government's intention to establish such a service. It will be the first task of the Faculty to examine the many questions arising in this connexion, and its aim, in collaboration with the appropriate Ministries and other bodies concerned, to play an important part in determining the form which this service will take. This raises questions not only of conditions of service but of the relation of the ophthalmic practitioner to the dispensing and sight-testing opticians, the methods of spectacle supply, the establishment and control of clinics, and so on, all of which are of far-reaching importance. Moreover, the institution of a National Service will raise the issue of the personnel who are to be considered as ophthalmologists, and the regionalization of hospital services will require adequate planning.

In addition to these medico-political matters it is evident that the questions of education and research, clinic and hospital policy, industrial problems, and a host of others are to assume importance in the immediate future. It is advisable that the whole body of ophthalmologists should play a part in the institution of such policies as they affect their specialty and be in possession of a mechanism to influence their development. Organizations apart from ophthalmologists are taking an interest in such questions. It would seem of importance that there should be some body more representative than the Council of British Ophthalmologists, as at present constituted, to guide the profession and advise the State. The Council of British Ophthalmologists has therefore decided to promote the formation of a Faculty of Ophthalmologists.

Functions of the Faculty

The functions of the Faculty will be:

1. To take cognizance of, and to act in, any matters of ophthalmic interest.
2. To encourage suitable standards of education in ophthalmology for undergraduate and postgraduate students.
3. To encourage research in ophthalmology and cognate subjects.
4. To secure such conditions in ophthalmic practice as will attract persons of high professional attainments and afford ample scope for the exercise of their abilities.
5. To maintain a high ethical standard in ophthalmic practice.
6. To act as an authoritative body for the purpose of consultation in matters of public and professional ophthalmic interest.

Details of Constitution

The Faculty shall consist of Members and Associates who must be registered medical practitioners and have the following qualifications:

Members.—Only ophthalmologists of full consultant status shall be eligible for membership. They shall be: (1) Ophthalmic surgeons to hospitals recognized as schools of ophthalmology by universities or other medical examining bodies. (2) Ophthalmic surgeons other than the above who have been engaged for at least five years in full-time practice as specialists and have charge of beds in voluntary hospitals approved by the Council (at the initiation of the scheme, approved by the C.B.O.). Provisionally, these shall be general hospitals of more than 200 beds and special ophthalmic hospitals of more than 20 beds. (3) Persons no longer on the active staffs of hospitals who have held appointments specified in Classes (1) and (2). (4) Other ophthalmic surgeons of consultant rank approved by the Council, including those in the Services or holding Government appointments.

Associates.—Any ophthalmologist who has been for at least two years in full-time practice as a specialist (civilian or Service) shall be eligible for election as an Associate, on application in prescribed form and approval by the Council.

The above qualifications for Members and Associates are possibly temporary standards which may require revision in case of the establishment of a national grading of consultants and specialists.

Executive Organization.—Executive powers shall be vested in a council which, for the sake of continuity, shall be known as the Council of British Ophthalmologists. This Council shall consist of 21 members, of whom 15 shall be elected by Members and 6 by Associates of the Faculty.

Officers.—The officers of the Faculty shall be the President, Vice-President, Hon. Secretary, and Hon. Treasurer, who shall be elected annually by the Council from among its members. Election to the Council shall be by postal ballot on a national basis, but with provision as follows for regional representation. The electorate will be divided into five regions. In the case of Members, the candidate in each region who receives the highest number of votes in the national ballot shall be deemed elected as the representative of that particular region. Thereafter the remaining seats on the Council shall be filled by those other candidates receiving the highest numbers of votes in the national ballot. In the case of Associates, the candidate in each region receiving the largest number of votes in the national ballot will be deemed elected, except in the London region, where the two candidates receiving the highest number of votes will be deemed elected. As there will be five regions all the six seats open to Associate candidates will thus be filled. One-third of the members of the Council shall retire each year. The members of the Council to retire in every year shall be those who have been

longest in office, but as between persons who became members of the Council on the same day, those to retire shall be determined by the Council by such method as it shall think fit. Members of the Council shall be eligible for re-election for a further period of three years, but after the second period of three years shall be eligible only after a lapse of one year.

The Council shall call an annual general meeting of the Faculty to receive and discuss its report. Any Member or Associate of the Faculty shall have the right to bring up for discussion at the annual meeting, after giving due notice to the Secretary, any subject within the province of the Faculty. The Council shall have the power to call a special general meeting of the Faculty at any time in case of need.

Standing Committees.—The Council shall appoint standing committees to deal with certain branches of its work. These committees shall have no independent executive power. Their function shall be to advise the Council on the subjects with which they deal. Any Member or Associate of the Faculty may be appointed to serve on them, but the chairman of every standing committee shall be a member of the Council. Persons not Members or Associates may be co-opted for temporary service on standing committees when required. The same rules shall apply with regard to period of service on a standing committee as in the case of the Council.

Special Committees.—The Council shall have power to appoint special committees to deal with special subjects and report thereon to the Council. Persons who are not Members or Associates of the Faculty may be invited to serve on special committees, and these committees may be given power to co-opt such persons.

Subscriptions.—Members of the Faculty shall pay an initial subscription of three guineas and Associates one of one guinea. The subsequent subscription shall be determined by the Council.

Co-operation and Organization

It is anticipated that the new Faculty will work in co-operation with the Universities, Royal Colleges, and Corporations of Great Britain and Northern Ireland, and maintain a close liaison with the Ophthalmic Group Committee of the British Medical Association.

The Council of British Ophthalmologists has appointed a special committee to organize the Faculty, to enrol Members and Associates, and to make the necessary arrangements as soon as possible for the election of the Council. When the new Council has been established it will assume all the functions of the present Council of British Ophthalmologists, which will hand over all its records and any other property in its possession.

Forms of application for enrolment as Members or Associates may be obtained from the Hon. Secretary of the organizing committee, Mr. Frank W. Law, 45, Lincoln's Inn Fields, London, W.C.2.

ORDER OF ST. JOHN

The following medical promotions in and appointments to the Venerable Order of the Hospital of St. John of Jerusalem have been announced:

As Knights, Major A. T. Smith, O.B.E., and Capt. R. Williams. *As Commander (Brother)*, J. P. Mitchell, O.B.E. *As Officers (Brothers)*, Drs. W. D. Jenkins and T. B. Sellors and Mr. W. F. J. Whitley. *As Serving Brothers*, Lieut. (local Major) J. C. B. Whycherley, R.A.M.C., Majors J. P. Quinn, *M.C.*, and J. Misquitta, Capt. G. R. H. Wrangham, Drs. R. G. Fear, L. A. Daly, T. S. Cochrane, C. Homi, J. Grant, I. M. Hughes, T. S. Taylor, H. L. Groom, R. Sells, W. D. Mitton, J. Prentice, W. O. Pitt, E. J. Blackaby, H. D. McCall, A. Madwar, M. C. Cooper, *M.C.*, H. R. Wynne, R. C. Allen, J. Pearce, R. R. M. Porter, *M.C.*, A. J. Struthers, H. M. Golding, D.F.C., and E. Schwartze. *As Associate Serving Brothers*, Drs. M. B. Jay, J. M. Raphael, B. L. Chopra, B. B. Sharma, and T. C. B. Chowdhary. *As Serving Sisters*, Drs. Doris Johns, Christina R. Laing, Mary A. C. Ainscow, Hilda Burnett, Catherine J. van Dyk, Jean S. Henderson.

The Welfare Equipment Development Association is the name given to an association of makers and distributors of welfare equipment which was set up at a meeting in London on Dec. 6. The meeting was the outcome of a report by interested manufacturers that there was ample scope for such a body, and it was suggested that among firms to be invited should be those interested in the manufacture of first-aid and medical equipment, sanitary equipment, and safety devices. Dr. R. A. Galway, who was among the speakers on Dec. 6, suggested many ways in which the association could harmonize the efforts of manufacturers and the requirements of welfare officers to give maximum benefit to workers. The offices are at 61, St. Paul's Churchyard, London, E.C.4, and the acting honorary secretary is Mr. A. D. Hinds.

Correspondence

A Common College Site and an Academy of Medicine

SIR,—The discussions taking place in the *Times* and elsewhere for the establishment of an Academy of Medicine and the bringing together of the three Royal Colleges on a common site, referred to in the *Journal* of Jan. 20 (p. 92), show that both proposals have influential support. The convenience and economy of a common site are so obvious that there is really no difference of opinion as to its desirability, but only as to its practicability from financial and other points of view. But the mere propinquity of the three Royal Colleges has little to do with and could have little influence on the establishment of an Academy of Medicine.

When the chief medical societies were amalgamated to form the Royal Society of Medicine the project was regarded by its founders as a step towards an Academy of Medicine. That this object has not been attained is due to many causes, one of which is the overwhelming prestige of the Royal Colleges of Physicians and of Surgeons and the lack of any enthusiastic official support from them. As Sir Stewart Duke-Elder has pointed out, some of the chief functions of an Academy of Medicine are "to uphold and foster the scientific progress of medicine, maintain professional standards . . . and stimulate the spirit of research." Sir Ernest Rock Carling has added another—to co-ordinate the various branches of medicine. While the Colleges of Physicians and Surgeons have for centuries opposed specialism, they themselves are the oldest examples of it. Now that specialism has inevitably become universal in all the sciences the active fostering of co-ordination has become at least as important as that of the specialties themselves—which indeed can quite well look after themselves. The Royal Society of Medicine has done more than any other body to co-ordinate the branches of medicine. It is therefore somewhat disheartening to a past-president to find that the part which the R.S.M. has already played and the far greater part which it might yet play in the formation of an Academy of Medicine have received no recognition in the discussions.

The fundamental and all-important functions of an Academy of Medicine are, however, *identical* with those of the Royal Society with regard to the physical and general biological sciences. Just as the active and energetic co-operation of scientists and their societies is indispensable to the success of the Royal Society, so is the co-operation not only of the Colleges and the Society of Medicine but also of many other scientific bodies for an Academy of Medicine. It is true that several scientific societies are neighbours of the Royal Society at Burlington House, but though this may be occasionally a convenience it is otherwise an almost negligible advantage. The common College site and the Academy of Medicine are both eminently desirable and deserve energetic support, but it will be a disservice to the latter to *exaggerate* the advantage to be derived from the former.—I am, etc.,

Far Headingley, Leeds. J. HERBERT PARSONS.

An Academy of Medicine

SIR,—The term "an academy of medicine" has a pleasing quality, although its modern advocates are hardly precise in the definitions they attach to it. On the other hand, it may surely be submitted that there already exists an organization which may claim in medicine an academic status—namely, the Royal Society of Medicine. An open platform, a democratic administration, freedom of debate with recorded and circulated records—what more can be desired?

In any event the last thing to be welcomed in the field of medical opinion would be a regime of authority.—I am, etc.,

Hove. C. O. HAWTHORNE.

The Oldest Medical College

SIR,—In the article "A Common College Site in London" in your issue of Jan. 20 you refer to the Royal College of Physicians of London as being "by far the oldest medical

college in this country, for it was founded by Henry VIII in 1518." It must have escaped your memory that the Royal College of Surgeons of Edinburgh was founded in 1505, and is therefore thirteen years senior to the Royal College of Physicians of London. I draw your attention to the point in the interests of historical accuracy, and I shall be glad if you will accept a copy of the late Mr. Creswell's *Royal College of Surgeons, Edinburgh, 1505–1905*, which contains the relevant historical notes.—I am, etc.,

R. W. JOHNSTONE,
President, R.C.S.Ed.

Edinburgh.

Anaesthesia in Shock

SIR,—I am appalled at the complacency of Messrs. A. C. Crooke, C. J. O. R. Morris, and R. G. Bowler in their article of Nov. 25 (p. 863). Apparently they are so engrossed in their "scientific" investigations that they cannot see the wood for the trees. Their results and conclusions may or may not be of value to the profession, but there seems to be no excuse for allowing patients to die from lack of common sense and elementary clinical knowledge. Of the 5 illustrative cases, 3 died and 2 recovered. Clinical descriptions are apt to be misleading, but the following observations seem to be fair comment.

Case 1.—This patient was admitted at 10.15 a.m., "probably not severely shocked, because the surgeon left him." But he had a double compound fracture and a severe flesh wound, and at 4.15 p.m. (6 hours after admission) he was ashen grey and cold and his blood pressure was 50/45 mm. Hg. Three-quarters of an hour later somebody with a tiny spark of clinical acumen "made an attempt to start a transfusion," but after 2 hours the patient had received only 924 c.cm. of fluid, of which 686 c.cm. was plasma and the rest blood. At this time the blood pressure was still only 60/40 mm. Hg, but the patient was "even smiling at the doctors," so they stopped his life-saving transfusion and operated on him and he died on the table. His minor wounds were "cleaned and sutured," but the major "compound fracture with much laceration of tissue" was not touched.

Surely it is common knowledge in the profession that a patient with a compound fracture and a severe flesh wound who is ashen grey and cold and has a blood pressure of 50/45 mm. Hg requires early and rapid transfusion of blood, and operation as soon as the blood pressure reaches the 100 mark. Also the transfusion should be continued *during* the operation and for a short time afterwards.

Case 2.—This patient was admitted at 1.45 a.m. He was drowsy and ashen-coloured and his blood pressure was 60 mm. Hg, but as there was "no obvious haemorrhage" he was left until 6 a.m. before transfusion was started. But he had a compound fracture of the right forearm with a severe injury of the right hand. There were also multiple wounds of the right leg of such severity that the vitality of the leg was abolished. He must have lost a lot of blood before admission. At 8 a.m.—i.e., over 6 hours after admission—he had received only 2 pints of blood, but the transfusion was stopped. Three hours later a plasma transfusion was started, and during the next 10¼ hours, while "investigations" were being carried out, 3 pints of plasma were given slowly. Eventually, 20¼ hours after admission, he was operated on with a blood pressure of 100/55 mm. Hg. But between 6 a.m. and 9.30 p.m. (time of operation) his blood pressure had fluctuated between 105 mm. Hg and 130 mm. Hg. The day after operation "he was too ill to have his gangrenous leg amputated."

What a sorry story of fiddling while Rome burns! Again, the severity of the injuries demanded early transfusion and operation, and the essential part of the latter was the removal of the gangrenous leg as quickly as possible. To wait 20 hours and then to omit the essential part of the operation is just incomprehensible.

Case 5.—Intravenous pentothal is not the best anaesthetic for an old man of 67 who has a fractured femur. To repeat the dose 4 days later in order to correct a malposition which could well have waited 10 days was to court disaster.

Cases 3 and 4 were admitted with a blood pressure of over 100, and seem to have been suffering from so little clinical evidence of shock that they were able to withstand investigation of their non-existing shock.

Finally, in their conclusive recommendation of cyclopropane and oxygen as the best anaesthetic for the severely shocked patient, Messrs. Crooke, Morris, and Bowler make the astonishing remark (astonishing after 5 years of war) that "in modern war it is possible for the great majority of patients to be brought back for operations to base hospitals." Do these gentlemen not yet realize that compound fractures, severe flesh wounds, and amputations are operated upon in the forward areas, where the anaesthetist has neither cyclopropane nor nitrous oxide at his disposal? Yet the mortality rate in such cases is less than 1%.—I am, etc.,

R. STRANG,
Major, R.A.M.C.

B.L.A.

SIR,—Dr. D. C. Devitt asserts (*Journal*, Dec. 16, p. 798) that the conclusions reached in our article on general anaesthesia in shock are based on only 26 cases. These cases, on which he bases his criticisms, formed a control group which were not shocked and had normal plasma volumes. For reasons of space we reported fully only 5 cases of shock from a wide experience. These cases were chosen to demonstrate the greater tendency of anaesthetics to lower blood pressure when the plasma volume was reduced. The only "far-reaching conclusion" to which we have come is that anaesthetics affect the blood pressure mainly through the vasomotor system, and we consider that the evidence which we have presented is adequate.

In reply to Major Strang's letter, I should like to state that we are in agreement with a number of his criticisms, but would point out that they should be directed to the clinicians in charge of the cases. We went as independent observers and had no control over the management of any of the three cases in question, which were all seen in outlying hospitals. I would urge Major Strang, however, to be more careful of his facts; thus, in Case 1 he states that "after 2 hours the patient had received only 924 c.cm. of fluid, of which 686 c.cm. was plasma and the rest blood." This is very different from the statement made in our paper. The patient actually received sufficient fluid by transfusion to restore the plasma volume to normal. We selected this case as an example of mismanagement in another way—namely, the choice of anaesthetic.—I am, etc.,

A. C. CROOKE.

London Hospital, E.1.

War Malaria

SIR,—Sir Philip Manson-Bahr's contribution to war malaria (Sept. 9, 1944, p. 350) is indeed welcome, as it expresses the common sense of the position. In Egypt it was not my business to treat malaria cases, but it was my business to advise the D.M.S. what was to be done with them. I soon found (what Sir Philip Manson-Bahr now states) that benign tertian malaria is more of a nuisance than a serious disease, except in the uncommon cases where there is some complication.

The matter came under my notice when travelling in Egypt, when the medical officers in the hospital trains, who were well informed, asked me to deal with the men they called the "round trippers." What actually happened was that some with benign tertian malaria were sent to Egypt and taken into hospital. They were carefully examined—I think in some instances by men who had never seen malaria cases. As they could find nothing the matter with the men they sent them back again. They got as far as the Canal, where a glass of water, etc., brought on another attack. They were sent back to a hospital in Egypt, usually not the hospital which discharged them. The result was that the hospital trains were littered up with these cases. I had a discussion with the chief, and the following procedure was arranged:

They were all put into garrison battalions and set to work. A small detention hospital was provided, and whenever they got an attack they were put into hospital. As soon as they were right they were put to work. The effect was twofold: it helped to eliminate malaria and prevented men from thinking they had a serious disease, and the "round trippers" were eliminated.

As Sir Philip Manson-Bahr says, malignant malaria is a different disease. It is protean and it can be very deadly. It may have been on his advice—that I cannot say—but the instructions were that if a soldier was sent to a forward station and had a rise of temperature he was immediately given quinine. If you waited until you found out whether he had malaria and what type of malaria it was, it was sometimes too late. The benign tertian cases which returned to Australia from that campaign have gradually disappeared, but I can only say that malignant malaria engenders profound respect in anyone who has to deal with it.

The extent of malaria can be gathered from the fact that the day after Armistice, when we left Egypt, there were 54,000

men in bed, mostly malaria cases, and that the Medical Research Council of Great Britain informed me that there were 650,000,000 cases on the globe and 4,000,000 deaths annually. But it is obvious that in such places as India and Malaya it is difficult to see which type you are dealing with. I believe in the epidemic in Ceylon 2,000,000 of the 5,000,000 people suffered from malaria, and 100,000 died. The details are not known to me.

Sir Philip Manson-Bahr rendered a great service in clearing up the problem, which for a time was a source of worry to the Army in Egypt.—I am, etc.,

Melbourne. JAMES W. BARRETT.

Terminology in Malaria

SIR,—In your annotation on terminology in malaria (Jan. 20, p. 88) you refer with approval to more precise descriptions of the various forms of malaria as *vivax* malaria, *falciparum* malaria, etc., "in place of such clumsy and archaic names as 'simple tertian,' 'benign tertian,' and the like." A recent attempt I made to employ this more precise nomenclature in the commentary for a medical film had to be abandoned because in the case of quartan malaria the phrase *malariae* malaria proved to be a cause of confusion, and well-nigh impossible to enunciate clearly. This difficulty might be avoided by referring to the four common forms of malaria as *vivax*-tertian, *falciparum*-tertian, *ovale*-tertian, and *malariae*-quartan—terms certainly less archaic but scarcely less clumsy than the old familiar names "benign tertian," "malignant tertian," "ovale tertian," and "quartan."—I am, etc.,

School of Tropical Medicine, Liverpool. J. W. S. MACFIE.

Prisoner-of-War Mentality

SIR,—I have read Major D. L. Charters's letter (Jan. 6, p. 24) with great interest. Briefly speaking, it is an objection raised to a statement made by Dr. Harkness in a letter last April. The statement he quotes is as follows: "The very large majority of our returned prisoners of war will be problems for their lifetime."

I agree with Major Charters that such a statement is pessimistic and probably far from the truth. I do not believe that a large majority or even a majority, but a very definite minority, remain problems for their lifetime. There can be no accurate statistics to prove such a statement either way, but I would be quite prepared to believe the figure well under 10%. An article appeared in the *Journal* of Jan. 1, 1944 (p. 8), and was written some six months after I had returned from a prison camp. In that article emphasis was laid on the problems of the period following repatriation. The repatriates' reactions were called "release phenomena." The period was likened to that time when a man is released from a caisson and shows symptoms of caisson disease. It was stressed that this was not really a disease but normal phenomena shown by a normal body as a result of release from an abnormal external environment. I hope I shall in no way offend or hurt Major Charters and his companions who join him in giving evidence against Dr. Harkness's statement if I point out that they are still within the caisson and are unable to judge accurately what are to be their reactions after release.

At the time that article was written I was myself passing through the period of reaction. Since then I have taken much interest in this subject and have met many returned prisoners of war, and can perhaps now convey an impression somewhat nearer the truth. Prisoner-of-war life probably exaggerates neurotic and psychopathic tendencies. It is the small minority with these latent weaknesses who may show symptoms of such for the rest of their lives. It is for these cases that I thought fit to suggest that there should be set up after the war a special rehabilitation centre with a psychological staff in attendance. The average man, who is in the large majority, on repatriation shows release phenomena. It should be stressed once more that these are not neurotic or psychopathic phenomena, but a normal response of a normal man to release from an abnormal external environment. It might even be termed an over-swing due to the inertia of failing to adapt immediately to a different environment. These symptoms are not those of mental abnormality and do not need specialist treatment. There may in some cases, however, as described previously, be some need of a "long-distance guidance." These symptoms will pass away and leave no trace. It seems evident that a tendency to show these phenomena is present in everyone, and that many do show them to a degree sufficient to be remarked upon.

These symptoms are the result of many factors, among which are: (1) An abnormally high morale due to sudden cessation of a hard life. This, keyed up by an idealistic image of their home country, gives rise to an impatience at the slow rate of progress and lack of enthusiasm at home. (2) An impatience to catch up after so much wasted time resulting in a tendency to cut corners in the accepted style of normal business and social life. (3) Not merely a lack of respect for authority but an actively encouraged disrespect and spirit of sabotage against authority. Running parallel but in opposition to these positive entities is a negative spirit, one of lethargy and apathy, born of years of frustration. These positive reactionary symptoms may therefore be considered as normal to the repatriate during a certain period of time.

In the same article I stated that at this time a man needs sympathy. It was an ill-chosen word. The repatriate himself wants not sympathy but a square deal and a job to get on with. He does not want charitable sympathy but a sympathetic understanding, an acceptance and a recognition of his value. With this in mind, the community will gain the confidence of the returning prisoner of war and reap the benefit from his latent spirit of high morale. Without this understanding there is a risk that he will join the lines of the discontented and thereby become a problem for the rest of his life. The repatriate wishes to rejoin the queue where he left it years ago, not at the back.—I am, etc.,

P. H. NEWMAN,
Major, R.A.M.C.

Psychology's Opportunity

SIR,—Dr. A. C. Wilson's letter (Jan. 20, p. 96) is as timely as it is trenchant, for not only does he indicate the source of many of the ills of the present-day world but he also points the way whereby they may be extirpated. Psychologists have long recognized that basically war, with all its implications, results from causes due to social maladjustments of persons and peoples. Freud, Ernest Jones, Glover, and many others have clearly demonstrated this in their writings and pointed a moral, but unfortunately their warnings have not been heeded, for those very evils which promote racial aggression and subsequently war still flourish unchecked.

With the exception of Soviet Russia the countries of the Western Hemisphere continue to labour under the yoke of an archaic ecclesiastical rule, which for centuries has imposed its taboos, fetishes, and imperfections upon mankind. In no country was this domination more shamefully abused than in Russia prior to the Revolution, but there to-day the greatest social experiment of all time is being carried out with results apparent for all to witness. There the aggressive instincts of a race have been sublimated into constructive channels, and the health and happiness and general welfare of the populace immeasurably improved thereby. In modern Russia, as Dr. Wilson points out, the psychologist has been heeded, and advanced thinking rather than a blind devotion to outworn social, economic, and religious creeds has wrought changes which must become the model for the rest of the world.

What great prospects await us here, too, if progressively minded men are but chosen to guide! Their task will be a hard one, however, for not only will they need to be equipped with a deep psychological understanding of the problems of to-day but they will also require force and courage to break down the centuries-old barriers which obstruct their path. That the present guardians of the barriers have failed is all too apparent to those who survey the present misery of the world, and the tragedy of the situation is intensified by the knowledge that such horror might have been averted. Greed in any section of society inevitably engenders hate and fear in others, and from these unholy twins springs that form of undesirable aggression which leads to war.

These processes must be clearly understood if the world is to be freed from recurring tragedies such as that which

engrosses civilization to-day, and modern thought should eventually prove capable of averting such disasters, but the old order must go and reason must prevail in its stead; with the growth of knowledge among the people as a whole the ultimate salvation of mankind will be achieved.

It is a significant fact that from the mass of literature written on this subject during the past decade only that which recognizes psychological concepts regarding the causes of war has proved accurate in its anticipations or genuinely constructive in its prophylactic suggestions. The soldiers, churchmen, politicians, and "big business" men have all failed because consciously or subconsciously they were activated by selfish motives; the psychologist has none of these, so why not follow Russia's example and give him his due place in the vast problems which will follow in the wake of peace?—I am, etc.,

A. TANDY CANNON.

*** Nevertheless we may well be thankful that the aggressive instinct of the Russian is so much in evidence on the Eastern front at the moment.—ED., *B.M.J.*

Relation of Neurology to Psychiatry

SIR,—In reply to Dr. F. A. Pickworth (Jan. 20, p. 95), whose views as to the frequency of incidence of organic lesions in the brains of mentally disordered persons seemingly differ from my own, I would suggest that much depends upon what one interprets as significant. This matter of interpretation is beset by many pitfalls and fallacies. Not least of these is the confused picture that results from lesions occasioned by the illness from which the patient died, as against those, if any, which truly appertain to the mental disorder as such. It is, of course, unusual for mental disorder *per se* to kill the patient save in certain well-recognized forms. Other fallacies relate to agonal and to post-mortem changes, also to changes occasioned by the process of fixation of tissues—to mention just a few to which the brain is specially vulnerable.

Even if all the lesions found could indubitably be regarded as related to the symptoms of disordered mind—and this indeed is a great supposition—the questions then arise, "In what temporal order did those lesions occur? Did the organic changes precede or follow the psychical? These questions are of the utmost importance as regards aetiology. It may be that the organic lesion is itself but the end-product of prolonged and repeated dysfunction, such as capillary spasm with ischaemia or arteriosclerosis following hyperpiesia, both of which may occur in states of emotional tension and lead either to actual degenerative lesions or to increased tissue susceptibility to other noxious agents. The application of dynamic conceptions to the field of organic pathological change has not nearly received sufficient attention.—I am, etc.,

Warlingham Park Hospital. WM. H. SHEPLEY.

Absence of Surgical Shock in Epileptics

SIR,—In view of the criticism by Mr. H. Haxton (Jan. 13, p. 61) of the inference I made (Dec. 30, p. 867) that absence of shock in my case of injury while in a major epileptic fit supported the theory of the nervous actuation of shock, may I amplify my reasons.

I did not mean to suggest, as Mr. Haxton implies, that the almost severed limb distal to the site of injury (which I described as cold and bloodless) could in any circumstances have come into the clinical picture. It was the extensive trauma to the muscles round the shoulder and to the joint itself, proximal to the point of severance, that I should have expected to produce severe shock, the absence of which I attributed to the epileptic state of the patient.

As a practising surgeon with a clinical rather than an experimental approach to the subject of shock, I should like to record my hesitation in accepting the "toxic" theory as the major cause of shock, based as it is upon animal experiments which seldom appear conclusive. For instance, the experiments quoted by Mr. Haxton in support of this theory, in which decerebrate animals suffer shock if the blood supply to an injured limb is maintained, are offset by others in which shock develops after release of a clamped artery supplying a traumatized limb, but is not increased when the vein too is released. May not the path of the centripetal shock-causing impulse travel by the sympathetic nerves accompanying the artery? This sympathetic route is favoured by: (1) the pain and mild shock sometimes caused by the clamping of an artery while operating under local anaesthesia, and (2) the severe shock often produced by traction on the upper abdominal mesentery during laparotomy.

As a clinician, I find it very hard to square with the "toxic" theory cases of shock approaching the fatal in degree which occur from time to time from purely psychological causes, and those in which the circulation, as in a volvulus of small gut, is automatically occluded. Again, the wide variation in the degree of shock produced by similar injuries in individuals of contrasting psychological make-up is much more suggestive of a nervous than a chemical onslaught.

While admitting, therefore, that the prolongation of shock may often depend on some toxic product, I prefer to consider that its first onset is more often actuated by some nerve impulse.—I am, etc.,

Beccles, Suffolk. C. GRANTHAM-HILL.

Supervision of Mental Defectives

SIR,—Dr. J. S. Cookson's article (Jan. 20, p. 90) deals so briefly with a subject with so many facets that it begs for amplification. His plea seems to be for the subsidization by the local authority of employment for mental defectives who at present readily find a full-time occupation owing to labour shortage, but who, when labour conditions return to normal, will be unable to compete for employment with those of adequate intelligence except in carefully selected individual jobs, which naturally will be few. Dr. Cookson quotes the view that institutional (colony) training tends to adapt the defective to the needs of the institution. His figures are for defectives (adults) ascertained in childhood who are not under certificate and who presumably have never received institutional care and training. Perhaps the following figures might supplement Dr. Cookson's, and show the picture of employment from a colony source within the same geographical area.

Out of 477 adult male defectives of all grades at present on the books of this colony 46 are on licence living with parents or employers where the nature of employment is that normally done by adults and is full time, 35 are at various agricultural workers' hostels, and 27 are going out from the colony to daily full-time work normally that of an adult, giving a proportion of 22% employability from "institutionalized" defectives to compare with Dr. Cookson's 48 out of 227, or 21%. Dr. Cookson's lowest mental level is 5 years, and one assumes that his 227 ascertained defectives under statutory supervision are not the grosser types who are for the most part in institutional care in any case.

As well as supplementing Dr. Cookson's figures I think this may be taken as refuting the belief that institutional employment leads only to "institutionalization."—I am, etc.,

J. JOHNSTON MASON,

Westbury-on-Trym, Bristol. Medical Superintendent, Brentry Colony.

Hypoproteinaemia in Severe Anaemia

SIR,—Dr. T. Davies's article (Jan. 13, p. 45) has stimulated me to record a similar case.

A woman aged 48 was admitted to hospital on Nov. 10, 1944, with a history of ten years' menorrhagia. She has been "anaemic" for years and used to "swell upwards" some days *after the periods stopped*—i.e., while protein was taken up in the formation of haemoglobin. On examination her conjunctivae were pale, so were the nail beds and palms; koilonychia was present; superficial glossitis was evident. Generalized oedema stopped at the level of the 4th intercostal space. Her thigh measured 36½ in. and the abdomen was 46 in. in girth. There was cervical congestion of 4 in. above the manubrium and some cardiac enlargement. A haemic systolic murmur was heard at the apex. B.P. 130/70. No hydrothorax or ascites, the abdominal girth being due to oedema of the wall. The blood picture was Hb 31%; R.B.C. 3,150,000; C.I. 0.5; icterus index 15 U.; Wintrobe vol. index 0.8; plasma proteins (copper sulphate method) 5.40; cholesterol 100 mg. per 100 c.cm.; van den Bergh positive indirect 5.6 units. The urine excretion was 30 oz.; no abnormal constituents. Jaundice became clinically obvious. The patient felt very poorly and she was grossly orthopnoeic. On Brig. Whitby's advice one pint of whole blood group O was given,

followed by *double-strength* reconstituted plasma. A high protein diet was started and supplemented by ferrous sulphate, HCl, vitamin C, thyroid, and desiccated hog's stomach. On Nov. 23 Hb 55%; R.B.C. 4,500,000; plasma protein 5.8%; thigh girth 30 in., abdomen 41 in.; urine output 40 to 45 oz. daily.

It was noticed that oedema remained more pronounced on the left side, and it was suggested that a fibromyoma might be pressing on the left venous and lymphatic return and also accounting for menorrhagia with the whole sequence of events. This was subsequently confirmed when pelvic examination became possible. On Dec. 19 the patient was discharged with practically her normal measurements, "fitter than ever before," and with a healthy red colour in her cheeks.—I am, etc.,

Dorset County Hospital, Dorchester. D. CAPPON.

Artificial Insemination

SIR,—May I say how I, and I am sure many others, welcome the letter of Dr. Leonard G. Parsons (Jan. 20, p. 96) and the breath of wholesome common sense and moral indignation it brings to the discussion on artificial insemination that has been conducted in recent numbers of the *Journal*. It is difficult to argue with the advocates of this latest novelty in techniques offered to the community, for they seem to have no clear ethical principles and, we may be sure, will be disdainful of those that have. To invoke the Christian ethic, as Dr. Parsons has had the courage to do, will elicit nothing but jibes from them, and yet it must be invoked if medicine is not to become the servant of hedonism.

The legal sanction is the only one likely to appeal to the advocates of extramarital insemination; but even the law may falter, as we saw when the speculation that a pregnant girl, stated to have been raped, might develop a neurosis was equated with "danger to life," and the artificial termination of her pregnancy pronounced lawful.

The logical conclusion of this advocacy of artificial insemination is the human stud farm, with the making of a stud book, and the State registration of semen donors. We shall then have a new profession (or shall we call it a trade?) of donors, presumably a very select one, for those who do not blush to adopt it. A new medical specialty will follow (with a new-coined Greek or Latin name), asking for a special diploma from the relevant examining bodies, and, in due course, for its own special place in the medical curriculum. Thus "medicine" advances from triumph to triumph and retreats from decency after decency.—I am, etc.,

London, W.1. F. M. R. WALSHE.

SIR,—Mr. T. C. Clare (Jan. 13, p. 62) asks at what age a child, the result of A.I.D., should be told the circumstances of his or her birth. In my experience as certifying factory surgeon I found that most adopted children had not been told that they were illegitimate before they left school. If the parents follow the instructions of the A.I.D. surgeons to have the child registered in the husband's name, there will be no need to inform the child at any time. But is this instruction not an incitement to commit a felony?—I am, etc.,

Birmingham. ROBERT ANDERSON.

SIR,—Many aspects of artificial insemination have been discussed, but one aspect has been ignored until Mr. T. C. Clare called attention to it. The effect of this scientific experiment on its victim is surely of vital importance. It has been somewhat airily assumed that he would know nothing of it, but this is most unlikely. "Murder will out": he is obviously illegitimate, and this cannot be concealed without criminal liability involving both parent and doctor. For this reason alone I advise no medical man to have anything to do with it. What would be the reaction of a young man or girl to the knowledge that they were the offspring of a test-tube supplied by some unknown man, and what would they think of their mother? It is difficult to believe that any decent man would lend himself to this proceeding; even the tempting possibility of being the father of 400 children a week, so alluringly mentioned by one of your contributors, would not induce him to join a stud farm. Surely, if a couple are prepared to accept the intervention of a third person it would be most natural to let this man operate in the natural way; morally I can see no difference.

One might make another point: suppose the woman was not satisfied with one child and wanted three or four—who is to limit her? And one may reasonably assume several donors; it would certainly be a very interesting family, but how would it work?—I am, etc.,

Brighton. J. A. ROOTH.

SIR,—I have read the correspondence about the above and the article in the *Journal* of Jan. 13 (p. 40). I find myself in complete agreement with the able letter of Dr. Leonard G. Parsons (Jan. 20, p. 96). In my opinion this procedure is illegal, immoral, and disgusting. I consider it is wrong to introduce into the human body living organisms except in the natural way. One of your correspondents compares this procedure with the crime of murder, and suggests extenuating circumstances; I cannot conceive any similar extenuating circumstances, but by this statement he certainly admits the illegality of the procedure.

The care of the health of the people is the doctor's job, not the production of artificial babies. The general suggestion seems to be that the profession should adopt their own moral code. I am afraid we are deteriorating rapidly.—I am, etc.,

York. F. J. WILFRID SASS.

SIR,—What a picture this subject conjures up! A man masturbating—as a "favour" or for a fee; the fertilization of another man's wife by his semen, artificially introduced by a doctor who is blind to the moral issues raised thereby; registration of the child in the name of the woman's husband, but not of the real father; and, finally, the life-long mental effect that must be produced in both the man and his wife from the knowledge that the child is not *their* child but the mediate adulterous offspring of a stranger! The most surprising thing is that there should be members of our profession who apparently are willing to lend themselves to such a form of procuration, and, over and above it all, are not ashamed to write to the medical press and boast of their share in such iniquity.—I am, etc.,

Brookwood, Surrey. H. M. STANLEY TURNER.

SIR,—I take the strongest exception to the pages of the *B.M.J.* being used to propound the pagan way of life. Your contributors on artificial insemination (donor) (Jan. 13, p. 40) have said nothing particularly original except perhaps to suggest that the marriage service in the Book of Common Prayer means just nothing to them. Personally I regard this article as the most diabolical thing I have ever read, and it must offend every member who even half-heartedly favours the Christian view of the family. The whole article reeks of vicious expediency, half-truth, and advocacy of plain lying—e.g., birth registration—a scheme of things which if tolerated would not enhance our reputations with the laity.—I am, etc.,

Stourbridge. C. F. KEANE.

Handbook on the Care of Laboratory Animals

SIR,—Last year we wrote to all holders of the Home Office licence asking them to send us information for use in the forthcoming handbook. Thanks to valuable help from workers in Britain and also in America, Russia, and elsewhere, it has been possible to deal with most if not all of the smaller laboratory animals; but we are anxious to get into touch with those who have been successful in maintaining healthy stocks of the larger species—cats, dogs, the smaller ungulates and primates. These species will not be dealt with in detail in the handbook, but we should like to include references to published accounts of methods of maintaining healthy and contented stocks and also to mention laboratories at which advice on the subject can be given at first hand. We should be most grateful if those who could help in either of these ways would get into touch with us as soon as possible.—We are, etc.,

C. W. HUME,
Hon. Secretary,
F. JEAN VINTER,
Secretary,
Universities Federation for Animal Welfare.

284, Regent's Park Road,
London, N.3.

Future of the G.P. Specialist

SIR,—Mr. J. K. B. Waddington's letter (Jan. 20, p. 97) ventilates a most important problem which does not appear to have received any consideration by the Government in the White Paper. There are several hundreds of experienced surgeons, physicians, and anaesthetists attached to hospitals performing splendid work while at the same time engaged in general practice. Their future appears to be nobody's concern. Recently a colleague engaged in general practice operated successfully on an eminent physician and an equally eminent ear, nose, and throat surgeon. Such skill must not be put aside because the possessor of it is also engaged in general practice.

I suggest that all such physicians, surgeons, and anaesthetists should join together to voice their views and state a case to the Government through the Negotiating Committee. I am prepared to organize a united effort to be presented to the British Medical Association if I receive support from members of hospital staffs.—I am, etc.,

New Place, Horsham, Sussex. GERALD DELACEY.

Death of Robert Burns

SIR,—In reply to Dr. Archibald Ogg's letter to the *Journal* of Jan. 13 (p. 62), may I suggest that the late much-respected Sir James Crichton-Browne viewed the matter of Burns's last illness as a somewhat prejudiced historian working with scant material rather than as a cold clinician doing the same, using other men's unsubstantiated facts?

The words "rheumatic endocarditis" indicate what is only symptomatic of an acute valvulitis in the one case, of cicatrized valves in the other, chronic, case; being simply a label, a part diagnosis recording an incident in the course of the illness and not the disease itself. A fact well known to practising medical men is this: that scarred heart-valve cusps occurring as a sequel to acute articular rheumatism (rheumatic fever) commonly dispose to and determine the site of a bacterial endocarditis many years after. However, we need not "split straws": clearly, Burns died of an actively infective disease of the whole heart, not from alcoholism, which itself could have neither provoked nor excited the disease. Thus far, I dare say, Dr. Ogg would agree with me; then we can forget it, and turn again to enjoy Burns's delightful poetry.

In reply to Dr. Letitia Fairfield's letter (Jan. 20, p. 98), may I point out that she, unreasonably as I think, places the blame for Burns's death on the doctors; meaning, I suppose, Dr. Maxwell, though he without doubt would advise to the best of his ability in conformity with the then medical teaching. Gentle and generous towards the sick poet as he was known to be, the doctor was much liked by Burns, who named his posthumous child after him—a deed which speaks for itself.

Perhaps the "tonic treatment" ordered—crude as it was to include sea-bathing, horseback exercise, iron water and port-wine together—might in some circles be fancied even to-day as being not unorthodox and likely to be helpful, though in Burns's case unsuited to his condition of health at the particular time when he was out of the doctor's sight, away from his professional supervision. Could the doctor be held blameworthy for this? I think not. Though unsuitable in relapse, the prescribed treatment was probably believed suited to his case before Burns left for the Solway. Dr. Fairfield's statement will call to the minds of medical men with long experience of practice instances where they have been wrongly held responsible for causing the patient's disease, let alone his death.—I am, etc.,

Bournemouth. S. WATSON SMITH.

The latest news bulletin concerning the Friends' Ambulance Unit (4, Gordon Square, London, W.C.1) gives a record of work by the oversea section, whose members now number more than 500. Throughout last year the main increases in oversea personnel were made in response to demands in the field of European relief. Among other items of information from various parts of the world is a first-hand account of conditions in Tengchung, a large city retaken by the Chinese on the Yunnan front, where the F.A.U. is initiating some measures of medical relief. The chairman has returned from a four-months tour of Mediterranean sections and Ethiopia. The annual report of the F.A.U. for 1944 was published on Jan. 23.

Medico-Legal

BUSINESS OR PROFESSION?

An optician practised in St. Helens. The income-tax authorities said he was carrying on a business, and assessed him for excess profits tax. He appealed to the Inland Revenue Commissioners, and they held that he was carrying on a profession. The department took the case to the High Court, where Mr. Justice Macnaghten said that, although the Commissioners had found as a fact that he was carrying on a profession, the right view of the case was that he was conducting the business of selling spectacles. The learned judge's decision necessarily meant that there was no evidence on which the Commissioners could have found that the optician was carrying on a profession, for if there had been any such evidence his Lordship would not have been entitled to upset their finding. The optician appealed to the Court of Appeal, who said that the Commissioners had evidence before them upon which they could reach their conclusion, and its correctness was therefore not a matter of opinion. The Court accordingly held that the optician had been practising a profession and therefore could not be assessed for excess profits tax.

As their Lordships went fairly fully into the distinction between a business and a profession, their decision has general importance. The essential notion of a business, within the meaning of the Finance (No. 2) Act, 1939, S. 12 (3), is that it is commercial in character. Lord Justice Scott said the section left in his mind a strong impression that the primary object of the excess profits tax was to deal with profits which were likely to be greatly augmented by the effect of war upon supply and demand without any relation to the efforts of the owner of the business. That view, he thought, was consistent with the characteristic of the tax that professions, which essentially depended upon skilled but non-commercial individual initiative, should be exempt. Six considerations pointed to this optician's carrying on a profession. There was no advertising, even outside the premises; he had the appropriate waiting-room and two consulting-rooms; no prices were mentioned in connexion with the seven or eight types of frame exhibited in his little windows for the observation of patients. He carried out the functions of examining and testing eyesight and prescribing the suitable glasses and assembling them in their frames—meaning, no doubt, for example, that they were set in the frames at the appropriate angle, which of course was essential. His net earnings were very substantial, particularly in relation to his expenditure on material—what would be called the stock-in-trade of a business; and the proportion between those earnings and the item for stock-in-trade was far larger than it would normally be in any trading business. The Court of Appeal disagreed with the Solicitor-General, who argued for the Crown that the livelihood of a professional person was attributable to his intellectual qualifications. A professional man, they said, might utilize aesthetic qualifications, and one who dealt with a subject-matter cognate to medicine might use many other qualifications. They therefore disagreed with the judge's finding that as a matter of law an optician is not carrying on a profession.

The Services

Temp. Surg. Lieut. M. J. Brosnan, R.N.V.R., has been appointed M.B.E. (Military Division) for great courage and devotion to duty in organizing rescue parties and in first aid to the injured when H.M.S. *Blackwood* was lost.

Temp. Surg. Lieut. R. C. P. Aldridge, R.N.V.R., has been mentioned in dispatches for good services during operations in Italy.

Col. (Acting) D. P. Levack, R.A.M.C., has been appointed C.B.E. (Military Division) in recognition of gallant and distinguished services in the field.

Major (Temp. Lieut.-Col.) J. A. Chapel, M.B.E., R.A.M.C., has been appointed O.B.E. (Military Division) in recognition of distinguished services.

The Efficiency Decoration of the Territorial Army has been conferred upon the following: Lieut.-Col. E. Walsh; Majors (Temp. Lieut.-Cols.) A. H. Charles, E. J. G. Glass, F. W. A. Warren, and J. F. Wilde, R.A.M.C.; Major H. P. Gabb, M.C.; and Capts. Jack and J. H. B. Livingston, T.A.R.O.

CASUALTIES IN THE MEDICAL SERVICES

Major BARNETT FREEDMAN, who died over-seas on Dec. 2, 1944, aged 30, was, at the time of his death, Deputy Assistant Director of Medical Services (Nutrition) at Headquarters, Allied Land Forces

South-East Asia Command. He studied medicine at the Middlesex Hospital from 1934 until he qualified M.R.C.S., L.R.C.P. in 1939. After working as R.M.O. at the Albert Dock Hospital during the period of intense air raids on the docks area, he joined the R.A.M.C. in Dec., 1940. In the Army he served first in Wales and then went abroad in April, 1942. Arriving in India, he was posted to the North-West Frontier and spent a year there. His special interest in and knowledge of nutrition caused him to be appointed as nutritional adviser, first to Central Command, and latterly to Allied Land Forces. His work to improve the nutritional status of British and Indian troops constituted an important contribution to the war effort and earned for him a considerable local reputation. He travelled continually and examined approximately 40,000 men in the course of nutritional surveys. His personality, especially his modesty and sense of humour, endeared him to those with whom he was associated. His death leaves a gap hard to fill and removes a man of great promise.

Previously reported missing at Arnhem, now officially reported died as prisoner of war.—Capt. John Howard Keesey, R.A.M.C.

Missing, presumed killed.—Temp. Surg. Lieut. Lachlan McLachlan, R.N.V.R.

Prisoner of war.—Lieut.-Col. E. Townsend, M.C., R.A.M.C.

Obituary

SIR HENRY GAUVAIN, M.D., M.CH., F.R.C.S.

By the death of Sir Henry John Gauvain the medical profession has lost not only a pioneer and eminent authority on surgical tuberculosis and heliotherapy but also a man of remarkable personality and charm.

Gauvain was born in Alderney in 1878. He was the son of William Gauvain, and both his parents were descendants of old Alderney families. He was educated privately and later entered St. John's College, Cambridge, as a scholar. He had a distinguished career at Cambridge and obtained first-class honours in the Natural Sciences Tripos of 1902. He then went to St. Bartholomew's Hospital as a scholar. After qualifying in 1906 as M.B., B.Ch., and M.R.C.S., L.R.C.P. he became house-surgeon to Mr. C. B. Lockwood, and also held intern and extern obstetric appointments.

In 1908 Sir William Treloar founded the Lord Mayor Treloar Cripples' Home at Alton for children suffering from surgical tuberculosis, and offered Gauvain the post of resident medical officer. Many of Gauvain's friends tried to dissuade him from accepting a post involving treatment of a condition for which practically nothing could be done, but he, being a man of vision, thought otherwise. At that time little was done in this country for children suffering from bone and joint tuberculosis. Gauvain paid a brief visit to Berck-sur-Mer, where the treatment of these cases by conservative methods had been carried on for about 30 years, and he started the treatment at Alton on the same lines, modifying and amplifying it in accordance with his own ideas and experience. In a few years' time Gauvain's work, and the results obtained, proved the words "Cripples' Home" to be a misnomer, and the title of Lord Mayor Treloar Cripples' Hospital was given to the institution, which was acquiring both a national and an international reputation, and Gauvain was appointed medical superintendent.

In view of present-day treatment of bone and joint tuberculosis it is perhaps interesting to refer to some of Gauvain's early troubles. Many of the members of the honorary medical board, which was composed of distinguished consulting surgeons and physicians of the time, were strongly opposed to Gauvain's treatment of tuberculous abscesses by aspiration. They saw no need for an *x*-ray apparatus, and he also had great difficulty in obtaining their sanction to buy a sterilizer for dressings, as the medical board did not consider sterile dressings to be necessary in tuberculous conditions.

Gauvain's name has always been associated with heliotherapy, and from the time he first started work at Alton he had been interested in the effects of sunlight on his patients, and had successfully demonstrated its value in suitable cases. For many years he was convinced of the value of sea-bathing in conjunction with heliotherapy in properly selected cases, but it was not until it was found possible to open the marine branch at Sandy Point, Hayling Island, in 1920 that the outstanding benefits of this form of treatment could be demonstrated. A few years before this time Gauvain had recognized the need for children at Alton to have some form of education. At first this was given by one or two nurses chosen for the purpose, but later the then Prime Minister, Mr. Lloyd George, on the occasion of a visit to the hospital, was so impressed by the need for educational facilities that the matter was brought before Parliament, and Alton became the first of the hospital schools in this country.

In 1920 Gauvain received the honour of knighthood for his services to cripple children. In 1925 he opened the Morland Clinics for private patients, where it is hoped that the work he started will continue. In 1927 he was elected Fellow of the Royal College of Surgeons, having proceeded to the degrees of M.D., M.Ch. 9 years earlier. For several years before this there had been further increase in the interest taken in light treatment, more especially in artificial light treatment, and Gauvain was one of the leaders in the movement. He paid several visits to the Finsen Institute, where he was elected an honorary member of the Medical Society of Copenhagen. He was always interested in the treatment of lupus, and a relatively large number of such cases were always under treatment in the Light Department at Alton. He held very definite views on the treatment of adult lupus patients and favoured the colony system, with suitable occupational therapy, as opposed to attendance as an out-patient at a hospital or clinic.

In 1926 he went on a lecture tour in the United States and Canada, and in 1936 he was made the recipient of the Distinguished Service Gold Key of the American Congress of Physical Therapy. In 1935 the British Medical Association Meeting was held in Australia, and Gauvain was president of the Section of Tuberculosis and Public Health. He gave the presidential address on sea-bathing in the treatment of surgical tuberculosis, and received the honorary degree of M.D.Melbourne.

About 15 years ago the rebuilding of the hospital at Alton was begun. This gave full scope to Gauvain's interest in hospital design and organization, and the present hospital with its imposing structure and equipment stands as a monument to his work. Following a generous benefaction in 1938 plans were made to build a hydrotherapeutic centre for the treatment of anterior poliomyelitis at the Hayling Island branch. He had always cherished the hope that this would be used for both adults and children of all classes. In 1940 he took under his care at Morland Clinics 100 Belgian children from an orthopaedic hospital evacuated from Ostend. In gratitude for his kindness to them he received a book from the Belgian Government containing letters from the Prime Minister, the Belgian Ambassador, and the President of the Belgian Red Cross.

Gauvain was consulting surgeon in tuberculosis to three county councils and held numerous other consulting appointments; he was also the author of papers on surgical tuberculosis, hospital design, and heliotherapy. But it was perhaps as medical superintendent of the hospital at Alton that he was best known. He was considered by many to be the ideal medical superintendent. He was beloved by his patients and his staff. He chose his staff with care, and if he was convinced of their competence gave them adequate scope, and remained himself unobtrusively but keenly observant of their work. But to those who had worked longest with him and knew him best it was his great-hearted kindliness that so endeared him to them; truly we shall not look upon his like again.

He married in 1913 Louise, daughter of the late William Butler, M.R.C.S., formerly I.M.S., and is survived by her and a daughter who is also a doctor.

CECIL JOLL, M.D., M.S., M.CH., F.R.C.S.

We regret to announce the death on Jan. 25, at the comparatively early age of 60, of Mr. Cecil Joll.

Cecil Augustus Joll was the second son of Mr. F. W. Joll of Bristol, where he was educated at the University College of that city before coming to University College Hospital in London. Alike in the number of his academic distinctions and of the hospitals to which he was attached as surgeon, he exhibited an exuberance which testified to the driving-power of one of the most dynamic surgeons of the generation which is now mostly sexagenarian. He had begun by studying dentistry, and became L.D.S., R.C.S. in 1907. Taking up medical study, in 1909 he was M.B., B.S.Lond., gold medallist with honours in medicine, surgery, pathology, forensic medicine, and hygiene. Gold medals and scholarships were common incidents in a career which included F.R.C.S.Eng. in 1910, M.S.Lond. in 1911, M.Ch.Bristol in 1911, and several other degrees or diplomas from each of these corporations. After qualification he was senior house-surgeon at the Leicester Royal Infirmary, house-physician at the Birmingham General Hospital, and senior R.M.O. at the Royal Free Hospital, London, where he was later for many years on the visiting surgical staff, and, finally, senior surgeon. He was senior surgeon to the Royal Cancer Hospital, London, surgeon to the Victoria Hospital for Children and to the Miller General Hospital; he was also surgeon to seven or eight hospitals in the Home Counties within reasonable distance of London. In the last war he was surgeon-in-chief to the Majestic Hospital in Paris, senior surgeon to the Richmond Military Hospital, surgeon to the Endsleigh Place Hospital for Officers, to the Michie Hospital in Queen's Gate, to the Maxillo-Facial Hospital, and to the Brook Hospital.

[Photo by Lafayette, Ltd.

This imposing catalogue of activity is an index to the man himself. He drove himself and all his subordinates with relentless energy, and was never so happy as when facing an operation list of ten or twelve or fourteen cases—in fact, would grumble at his house-surgeon if confronted with less. He loved to keep two theatres open with a separate theatre staff in each; when he had completed the essentials of one operation he would leave a trusted assistant to do the suturing and immediately start on a case, already anaesthetized, in the other one. As an operator his technique was masterly; never appearing to be in a hurry, he was so purposive that everything looked easy, and his rapidity and dexterity were almost unbelievable. His reputation stood highest, perhaps, in the surgery of the thyroid gland; but he was just as pre-eminent in the technique of gastric surgery; indeed, a visitor from the Antipodes, who had concluded a surgical tour of American and Continental clinics with a visit to London, once said that in gastric surgery Joll was the best operator he had seen. He could, moreover, do extremely well almost everything that comes within the ambit of a general surgeon. Nor was he merely an operating machine; his judgment was excellent, and his estimate of how much of the thyroid gland not to remove was very seldom at fault. No doubt the all-round experience gained in early days, including that of dental surgery, was of value in the make-up of one who came close to Moynihan's description of himself as "a physician who operates." And the end-results of his cases were as satisfactory as the operative technique: he did not operate to show off what he could do with a knife. The confidence of his surgical colleagues was shown by his election to the Council of the R.C.S.

As for the man himself, he touched life at many points. As a collector he had sound taste, and could buy only first-rate stuff. Water colours were a hobby he indulged freely, and he was also knowledgeable in furniture and pottery. He was a notable connoisseur of good food, good wines, and good cigars. He was also a keen ornithologist. He was Hunterian Professor at the Royal College of Surgeons in 1923; and in 1932 he produced his *magnum opus, The Diseases of the Thyroid Gland.* Most, but not all, of his contributions to surgical symposia (and to these columns) dealt with the surgery of this organ. He joined the B.M.A. in 1909, was honorary secretary to the Section of Surgery at the Annual Meeting of 1924, and president of the Section in 1931. His capacity for work was prodigious, and he worked longer hours, almost certainly, than any other surgeon of his time; yet he was always eager to spend half the night dancing as well, and would then rise at some very early hour of the morning to visit and operate at one of the hospitals outside London to which he was attached. Returning when many men had hardly finished breakfast to carry on his large private practice, he would spend the afternoon operating at one or other of his London hospitals till dinner time; and this routine would go on day after day and year after year. He was a phenomenon the like of whom certainly his contemporaries and his junior associates have not met before and are not likely to meet again. Joll married first, in 1924, Miss Laura Winsloe of Liverpool; she died in 1931, and he married secondly, in 1936, Miss Antonia Ramsden. He had two sons (one by each marriage), who with his second wife survive him; to them a wide circle in the profession and outside it offer their sincere sympathy.

Major WILLIAM NAPIER, M.B., F.R.C.S.I., who had practised for many years at Epsom, has died as the result of enemy action. He was born in Co. Down 50 years ago, and was educated at Campbell College, Belfast. He broke off his medical studies at the Queen's University, Belfast, at the beginning of the 1914–18 war and was soon in command of a combatant unit in France. Towards the end of that war he graduated and took the F.R.C.S.I. in 1920. At school and university he was one of the best forwards in the rugby sides and played in the Irish Trials. Most of his life was spent in practice at Epsom, where he was deservedly beloved and trusted by his patients and by all the racing fraternity in that town. He was, in addition to being a very successful practitioner, a surgeon of no mean ability. He rejoined the R.A.M.C. in the present war. William Napier (writes J. C. R.) owes no small portion of his success in life to the sympathy and tender care which he received from his devoted wife. What meant most to him in life was not the plaudits of the world but his friends and his beautiful and perfect family life. "We live in deeds, not years: in feelings, not in figures on a dial. He most lives who thinks most, feels the noblest, acts the best."

Dr. CHARLES FRANKLIN PEDLEY, who died on Jan. 9, was deputy medical officer of health for Bournemouth and held office as honorary secretary of the Section of Public Health (including tuberculosis) at the Annual Meeting of the B.M.A. at Bournemouth in 1934. He was born in Rangoon on Feb. 9, 1888, son of Thomas Franklin Pedley, M.D., and from Marlborough went to study medicine at Jesus College, Cambridge, where he took his B.A. in the Natural Sciences Tripos. He went on to Guy's Hospital for his clinical course and qualified M.R.C.S., L.R.C.P. in 1914. After house appointments at Guy's he became in turn assistant resident medical officer at the North Wales Sanatorium, Denbigh, and at Baguley Sanatorium, Manchester, and was then senior R.M.O. at Winsley Sanatorium, near Bath. During the last war he was surgeon to a Belgian field hospital. After demobilization and before taking up the appointment at Bournemouth Dr. Pedley was assistant school medical officer under the Birmingham Education Committee. He obtained the D.P.H. of Cambridge in 1925.

The late Dr. JAMES REID DICK, a former chairman of the Scarborough Division of the B.M.A., studied medicine at Downing College, Cambridge, and the London Hospital. He graduated B.A. with honours in the Natural Sciences Tripos of 1906, M.B., B.Ch. in 1912, and took the F.R.C.S.Ed. in 1919. After qualifying with the English Conjoint diplomas in 1909 he held a number of house appointments at the London Hospital. A colleague writes: "Dick was outstanding in his loyalty. At whatever hour of the day or night, however busy he was, a call to a patient or to a consultation always had an instant response. At all times he did his utmost and never let a patient or a colleague down. He was an excellent exponent of practical surgery, and his judgment and surgical acumen were equally good. He loved his work at the Scarborough Hospital, to which he gave devoted service, and much that he did

there was unknown and unseen. He knew his limitations in surgery and would often refuse to operate when he thought that others had more experience for that particular case. His work was his main and abiding interest, and nothing was allowed to interfere with it; but after his work his love of golf came very close. His loyalty was unquestioned but never blind, and if he saw a fault he tried hard to remedy it. He had a decisive mind and was not easily persuaded by argument against reason. In medical politics he was most conservative and detested the prospect of political interference in medical freedom. A fine partner, a very true and loyal friend and teacher, has passed on." C. G. G.-W. writes: "For over thirty years, in a happy partnership, Dick revelled in his practice at Scarborough and gained the affection of both patients and friends for his lovable qualities and his exceptional gifts in the profession to which he gave his all until sickness cut him down while yet in his prime. I learnt his worth when serving with him in France and Italy in the first world war, and can vouch for the high standard which he set himself and never ceased to maintain. 'Richard,' as his friends in France styled him, was a glutton for work and his relaxation was golf, at which he excelled. To have twice holed out in two at the long 18th hole at Gauton was a remarkable feat, if not unique. It is especially to those lovable qualities, which endeared him to so many, that I wish to pay a grateful tribute. When his light went out so suddenly an aching void was left in the hearts of his many friends. To his wife and three sons serving in the war our sympathy goes out."

News has reached this country from his pupil, Dr. Aldo Muggia, of Quito, Ecuador, of the death of Prof. BENEDETTO MORPURGO. He was born at Trieste on Aug. 15, 1861, and died in Buenos Aires on Aug. 21, 1944. It was in 1903 that he followed his teacher, Prof. Bizzozzero, in the chair of general pathology at the University of Turin. In the words of our correspondent, Prof. Morpurgo was deeply convinced of the morphological orientation of medical science, and he remained firmly loyal to his principles even when new tendencies began to prevail. His earliest work (1888) was a study of the laws which govern the regeneration of organic cells. With Canalis he began in 1890 experimental tests showing that complete fasting caused the loss of natural immunity against infections. He made many important contributions to the physiology of nerve and muscle, to cellular pathology, and on homoplastic and heteroplastic grafts. On the occasion of the 35th anniversary of his professorship a collection of original papers was offered to him by his disciples and by scientists from various parts of the world; this filled two large volumes, and contained treatises on a number of subjects in physiopathology. Prof. Morpurgo was an associate member of many foreign medical academies and often attended international congresses on general pathology, presenting there the results of his own investigations and those of his pupils. From 1925 to 1938 he directed the Cancer Institute of the City of Turin. After the Fascist Government had interrupted this charitable work its racial laws sent Prof. Morpurgo into exile.

Universities and Colleges

UNIVERSITY OF OXFORD

In Congregation on Jan. 23 the title of professor was formally conferred on Miss Ida Mann, D.Sc.Lond., F.R.C.S.Eng., Fellow of St. Hugh's College and Margaret Ogilvie Reader in Ophthalmology in the University. She is the first woman to receive the title of professor at Oxford. Prof. E. H. T. Liddell said in Congregation that hitherto the University had been making up the small stipend attached to the readership in ophthalmology to £1,000, and this would now be doubled; they were confident that the title of professor would assist Dr. Mann to build up a distinguished staff for her new Department of Ophthalmology.

In a Congregation held on Dec. 23, 1944, the following degrees were conferred:

B.M., B.Ch.—P. B. S. Fowler, L. Parker, R. A. Sladden, P. West, A. H. James, A. E. Preston, Mary R. Barker, Margaret K. Wilder. *In absence.*—R. G. Howell, A. A. Jefferson, D. Leigh, R. M. T. Walker-Brash, G. M. Colson, R. H. Marten, C. J. H. Starey, Joan F. Scott.

UNIVERSITY OF EDINBURGH

At a graduation ceremonial on Jan. 20 the following medical degrees and diplomas were conferred:

M.D.—*†M. E. S. Harrison, *A. S. Johnstone, I. F. Mackenzie, †E. G. L. Mark, †J. M. M. Batheson, lieut.-col., R.A.M.C., *†J. B. Pennybacker, †H. G. Triay.

D.Sc.—Department of Pure Science: J. N. Davidson, M.D.

M.B., Ch.B.—D. F. Aitken, M. M. Andrew, C. Austin, A. D. Bethune, C. G. H. Bourhill, Henrietta M. Brand, R. B. Crombie, G. B. Debenham, T. F. Elias-Jones, I. S. Ferguson, J. C. Foster, M. I. Girdwood,* C. G. I. Gordon, Vivian M. Guthrie (*née* Duncan), Jessie H. Ingram, D. M. Johns, F. R. C. Johnstone, J. Lister, R. C. W. Lowe, P. S. Lurie, E. M'Ewen, K. M'Lay, J. M'Lelland, W. W. M'Phail, R. Mendick, A. G. Moffoot, †K. S. Mowatt, J. E. Norman, Joyce M. B. Orr, Patricia M. M. O. Paterson, Barbara Petrovskaia, T. Philp, K. H. S. Pottinger, ‡R. F. Robertson, ‡J. S. Robson, P. F. Scott, H. A. E. Simpson, Carol M. S. Spence (*née* Walker), J. T. M. Stevenson, J. L. Stewart, B. J. I. S. Sutherland, R. W. Tonkin, J. G. Trimble, J. G. Walker, M. Wiederlight, E. A. M. Wood, A. D. C. Young.

Diploma in Medical Radiology.—M. M'Alley, Lesley I. Thomson (*née* Stewart), C. Kelly, Margaret S. King, K. A. Mackenzie.

* Highly commended for thesis. † *In absentia.* ‡ With honours.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Sir Girling Ball will deliver the Bradshaw Lecture at the College (Lincoln's Inn Fields, W.C.) on Thursday, Feb. 8, at 3 p.m. His subject is "End-results of Treatment of Growths of the Bladder."

The Hunterian Oration on "The Hunterian Museum" will be delivered by Prof. G. Grey Turner at the College on Wednesday, Feb. 14, at 3.30 p.m.

Medical Notes in Parliament

Paper for Medical Books

Major NEVEN-SPENCE asked on Jan. 17 for an increase in the paper quota available to the medical group of publishers in order to counteract the growing decline in the production of medical books. Capt. WATERHOUSE replied that quotas of paper were based on publishers' pre-war usage and did not vary with the types of books they produced. Mr. Dalton, however, had arranged last autumn for a substantial increase in the special reserve for books of particular importance, including medical books, which publishers could not produce from their quotas.

Emergency Medical Service

Mr. LIDDALL suggested on Jan. 18, in view of the fact that throughout the country many people were unaware of the activities of the E.M.S., that Mr. Willink should make a statement on the services that have been and still were being rendered.

Mr. WILLINK answered that aspects of the Emergency Hospital Scheme, commonly known as the Emergency Medical Service, had been described in recent annual reports of his Department, and had also been the subject of many newspaper and magazine articles and broadcasts. The scheme provided treatment not only for the sick and wounded of the Forces and for air-raid casualties but also for many classes of civilian sick and injured. The scheme had also developed such allied services as rehabilitation, blood transfusion, laboratories, and ambulances. There might be an opportunity of reviewing the scheme as a whole on some future occasion such as a debate on the Estimates. He wished to pay tribute now to the hospital authorities and to the medical, nursing, and other staff of the hospitals, who had co-operated so well with his officers in making the scheme a success.

Bethnal Green Shelter Disaster

On Jan. 19 Sir JOHN ANDERSON read in the House of Commons a statement which Mr. Herbert Morrison had prepared about the Bethnal Green shelter disaster. In this Mr. Morrison disclosed that when he directed High Court proceedings to be *in camera* he had before him an opinion, delivered by an experienced metropolitan magistrate after a painstaking inquiry during which 80 witnesses were examined, that the effective cause of the disaster was that a number of people lost their self-control at a particularly unfortunate place and time. He added that the Government decided in April, 1943, that public reference to the psychological cause might be an incitement to the enemy, with the resources then at his disposal, systematically to continue a form of attack which seemed likely to create a considerable disturbance to the life of the Metropolis. There was the added possibility of heavy casualties being caused until structural alterations could be made in the light of experience to many underground shelters.

Foot-and-Mouth Disease

In the House of Commons on Jan. 23 Mr. TURTON raised the question of the continued outbreaks of foot-and-mouth disease. He urged the importance of disinfecting the vehicles which carried imported meat from Argentina before they were used for livestock and feeding stuffs.

Mr. T. WILLIAMS said that if we could concern ourselves with the disease alone, obviously the straightforward method would be to prohibit the import of meat from those countries where foot-and-mouth disease was endemic or outbreaks were

known to be occurring. That, however, was almost out of the question. To concern ourselves with disease alone would reduce our meat ration to about 9d. per person a week. Vehicles used for conveying imported meat were also used to convey home-killed meat. He was sure that Parliament would not agree to an Order which required that vehicles used for the distribution of meat should not be used for carrying livestock and should not subsequently be used for carrying other goods until properly cleansed and disinfected. An Order covering the wholesale distribution of meat would cause great dislocation difficulties. Last year (1944) saw a heavy wave of disease in South America, which, if the transport risk had been great, ought naturally to have expressed itself in outbreaks where vehicles had conveyed meat and other goods to and from farms in their daily work. Not one original outbreak in 1944, however, was traced to a vehicle conveying imported meat. Nevertheless no opportunity should be lost of impressing on those who conveyed imported meat the importance of properly cleansing and disinfecting vehicles before carrying livestock. With regard to pigs it was not so much the butcher as meat scraps which were a danger to livestock. If the Orders already in existence were faithfully complied with the danger would be reduced enormously.

Direction of a G.P.—In a reply on Jan. 18 to Sir Arthur Evans, Mr. ERNEST BEVIN said a doctor in general practice in Cardiff had been found guilty of failing to comply with a direction to take up a post in a hospital, alleging conscientious objections. For this offence the doctor had been convicted and fined, but remained liable to be directed to other suitable employment. Directions would be issued accordingly if and when a post was found for him which was suitable, having regard to his experience, qualifications, and other circumstances.

Bedding and Upholstery Stuffing.—Mr. HEWLETT alleged on Jan. 18 that this country was considerably behind other countries in the standard of cleanliness required for the filling of bedding and upholstery and that British importers were being offered objectionable materials.

Mr. WILLINK answered that the need for a comprehensive review of this subject led in 1938 to the appointment of a Departmental Committee. In view of the importance of the subject arrangements were now being made for the committee to resume its work.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the incidence of measles was less than in the previous week by 968 cases, and that of scarlet fever by 132, while for other diseases the following rises were reported: acute pneumonia 157, whooping-cough 140, dysentery 98, and diphtheria 20. Deaths from influenza in the great towns have increased, the total now being 72; in the previous two weeks they numbered 35 and 55. In the combined regions of London, south-east, south-west, south midland, and eastern, notifications of diphtheria rose from 58 to 102, but for the rest of the country they fell by 24. Acute pneumonia is also prevalent in the south. The only large local variation in whooping-cough was Lancashire—a rise of 47 cases over last week's total. Lancashire reported 307 fewer cases of measles than last week, Nottinghamshire 252, Staffordshire 175, Cheshire 81, and Middlesex 59, but in Yorks West Riding cases mounted by 92, in Yorks North Riding by 78, and in Worcestershire by 69.

In Yorks West Riding notifications of dysentery rose from 13 to 100 (Wakefield C.B. 81, Sheffield C.B. 14). The other large returns were those of London 36, Lancashire 40, Southampton 16 (Petersfield R.D. 12), Buckinghamshire 14 (Aylesbury R.D. 13), Glamorganshire 10 (Cardiff C.B. 9).

A case of smallpox has been confirmed during the week ending Jan. 27 in a military camp in Anglesey. The 1,400 personnel have been vaccinated and placed in quarantine and the civilian population have been offered vaccination facilities.

In *Scotland* rises over last week's total notifications occurred as follows: whooping-cough 201, measles 192, scarlet fever 20, diphtheria 13. Notifications of primary pneumonia fell by 49, and those of dysentery by 28. A new outbreak of dysentery occurred in Clackmannan County, where 14 cases were reported.

In *Eire* the incidence of whooping-cough fell by 22, the totals for the other diseases remaining constant.

In *Northern Ireland* the notifications of measles fell by 42, and those of diphtheria by 7.

Week Ending January 20

The returns of infectious diseases in England and Wales during the week included: scarlet fever 1,564, whooping-cough 1,785, diphtheria 518, measles 12,054, acute pneumonia 1,399, cerebrospinal fever 77, dysentery 377, paratyphoid 1, typhoid 11. Influenza deaths in the large towns totalled 56.

No. 2

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Jan. 13.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945 (a)	1945 (b)	1945 (c)	1945 (d)	1945 (e)	1944 (Corresponding Week) (a)	1944 (b)	1944 (c)	1944 (d)	1944 (e)
Cerebrospinal fever	53	1	30	2	—	64	4	19	1	5
Deaths		1	3				3	1		
Diphtheria	459	20	154	113	20	673	41	158	106	51
Deaths	5	1	3	5	—	16	1	2	3	—
Dysentery	302	36	82	—	5	175	34	39	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	4	—	1	1	—	1	—	1	—	—
Deaths		—					2			
Erysipelas			45	9	4			43	12	1
Deaths		—					1			
Infective enteritis or diarrhoea under 2 years				10					9	
Deaths	52	2	9	14	1	61	13	10	14	7
Measles*	10,979	210	889	14	239	559	98	207	71	2
Deaths	18	2	2	—	—	—	—	—	—	—
Ophthalmia neonatorum	58	—	19	—	1	78	8	14	—	1
Deaths										
Paratyphoid fever	5	—	3 (B)	—	1 (B)	4	—	—	—	—
Deaths	1	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	1,399	72	17	5	14	1,294	105	50	25	6
Deaths (from influenza)	72	14	2	2	1	197	19	12	3	11
Pneumonia, primary			319	22				357	18	
Deaths		85		23	29		79		21	6
Polio-encephalitis, acute	3	—				—	—			
Deaths		—					—			
Poliomyelitis, acute	7	—	—	1	—	9	2	1	1	1
Deaths		—					—			
Puerperal fever		4	6		—		2	12		—
Deaths										
Puerperal pyrexia‡	127	8	6	—	—	152	12	13	2	1
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,330	52	212	21	37	1,747	146	229	29	92
Deaths	3	—	—	—	1	2	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	5	1	3	2	1	1	—	2	1	3
Deaths	—	—	2	—	—	1	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	1	—	—
Deaths				—	—				—	—
Whooping-cough*	1,678	57	285	50	9	2,023	184	252	52	12
Deaths	13	1	2	1	1	14	1	1	—	1
Deaths (0–1 year)	512	53	68	66	34	437	79	70	57	25
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	6,857	1089	745	288	170	5,715	975	739	292	170
Annual death rate (per 1,000 persons living)			16·9	18·6	§			17·0	19·1	§
Live births	6,586	647	884	286	260	6,363	749	883	379	251
Annual rate per 1,000 persons living			17·7	18·5	§			18·0	24·7	§
Stillbirths	203	18	38			195	14	39		
Rate per 1,000 total births (including stillborn)			41					42		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

Dr. Albert Schweitzer, philosopher, theologian, musician, and doctor of medicine, was 70 years old on Jan. 14. In his medical capacity he has run a hospital in French Equatorial Africa for the past 30 years. A *Bulletin* celebrating Schweitzer and his work has been published by the British council for his hospital and is issued from Friends House, Euston Road, London, N.W.1.

A meeting of the Medical Society of the L.C.C. Service will be held at Paddington Hospital, Harrow Road, W., on Wednesday, Feb. 7, at 2.30 p.m., when members of the staff of Paddington and St. Charles' Hospitals will demonstrate cases.

The next quarterly meeting of the Royal Medico-Psychological Association will be held at 11, Chandos Street, W., on Wednesday, Feb. 7, at 10.30 a.m., when discussions on "Electro-encephalography in Relation to Psychiatry" and "The Impulsive Psychopath" will be opened by Dr. Denis Hill and Dr. R. Sessions Hodge respectively, and Mr. W. Grey Walter will speak on "The Analysis of the Fine Structure of the Electro-encephalogram."

A lecture on "The Health Services of the Soviet Union" will be given by Dr. S. A. Sarkisov, professor of neuropathology at the Moscow Institute of the Brain and representative in Great Britain of the Red Cross and Red Crescent of the U.S.S.R., at the Pharmaceutical Society of Great Britain, 17, Bloomsbury Square, W.C., on Thursday, Feb. 8, at 7 p.m. A discussion will follow.

The Association of Scientific Workers has arranged a conference on "Science in Peace" to be held at Caxton Hall, Westminster, on Saturday and Sunday, Feb. 17 and 18. The subjects for discussion are "Science and Production," on Saturday afternoon at 2.15; "The Future Development of Science," on Sunday morning at 10; and "Science and Everyday Life," on Sunday afternoon at 2.30. Tickets, price 5s. (or 2s. 6d. for each of the three sessions) may be had from the A.S.W., Hanover House, 73, High Holborn, W.C.1.

The inaugural meeting of the London and Home Counties Medical Group of the Newman Association will be held in Hereford House on Sunday, Feb. 11, at 5 p.m., when Dr. H. E. Magee will speak on "Science and Life." All Catholic doctors are invited.

The Leverhulme Trustees invite applications for fellowships and grants in aid of research from British-born senior workers prevented by routine duties or pressure of other work from carrying out research. Forms may be had from the secretary, Dr. L. Haden Guest, M.P., Leverhulme Research Fellowships, Unilever House, Blackfrairs, E.C.4. They must be returned by March 1.

The Council of the Royal Society of Medicine has appointed a committee, under the chairmanship of Prof. E. C. Dodds, to investigate the effects of oestrogens in cancer.

Dr. J. R. Peters, senior assistant medical officer of health for the City of Glasgow, will succeed Dr. Thomas Ferguson as deputy chief medical officer of the Department of Health for Scotland. Dr. Ferguson was recently appointed to the chair of public health in Glasgow University in succession to Prof. James M. Mackintosh.

Dr. R. A. Young, consulting physician to the Middlesex and Brompton Hospitals, has been elected vice-chairman of the National Association for the Prevention of Tuberculosis, in the place of Sir Percival Horton-Smith-Hartley, who has retired on grounds of ill-health.

Prof. L. S. P. Davidson, M.D., of Edinburgh University, has accepted the invitation of Harrogate Town Council to investigate the lines of research which should be taken by the Corporation on the internal and external use of the Harrogate waters, the bathing establishments, and the treatments given.

Circular 170/44 issued to local authorities by the Ministry of Health deals with diphtheria prophylaxis. It is accompanied by a brochure on this subject (published by the Ministry of Information for the Ministry of Health and the Central Council for Health Education) which sets out particulars of facilities available for local publicity, with samples of printed material, etc., in a pocket at the back. The Minister feels that the brochure should now be distributed so that local authorities may make their plans for local campaigns in the spring and summer of 1945. Between Jan. 1, 1940, and Dec. 31, 1943, the number of children in England and Wales who, at ages under 15, had been immunized against diphtheria during those years under local authorities' arrangements was over 4,800,000. Of these more than 1,680,000 were children under 5 years of age when immunized. These figures show the widespread response by local authorities and their officers, as well as by doctors, parents, and others, to the call to combat the disease. Normally the best time for immunization is just before the first birthday, because the ensuing years, in which the risk of infection is high, are thus covered from the outset.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Brittle Nails

Q.—*A school nurse, 54 years old, has an excellent medical history except for sudden onset of amenorrhoea when 28 years of age. In the past months her nails have become brittle and have receded in some cases to within 1/4 in. of the cuticle. When cut, lateral growth is more rapid than central. She has never used nail varnish. Lysol and dettol are employed in the clinic, but she has used them for years. Her diet is as full as wartime permits.*

A.—In general, diseases of the nails may be divided into three categories: (1) Those caused by general or local infections. The latter refer to ringworm; the fungus may be found in scrapings made from the nail surface. (2) As a part of some general skin disease, such as psoriasis, where nail changes are commonly found. (3) As an idiopathic process in which, as a rule, the normal nail growth is gradually re-established under treatment. The case in question seems to belong to the third category, but ringworm infection should of course be excluded. If this has been done, treatment consists of giving arsenic by the mouth and small doses of *x* rays to the nail.

Phlebitis Migrans

Q.—*What is migratory or ambulant phlebitis, its cause and treatment? A patient suddenly, without apparent cause, starts phlebitis in the right saphenous vein, in Scarpa's triangle, an inch or two below its junction with the femoral. A few days later this apparently clears up, and a patch of inflamed saphenous vein appears in the inner side of the leg. Shortly afterwards the saphenous vein on the other side becomes similarly affected and behaves in a similar manner. One area improves as another becomes affected. This particular patient has never had veins affected elsewhere. May I have suggestions on treatment and relief of this distressing and disturbing complaint?*

A.—Migratory or ambulant phlebitis is a big subject. It would be helpful to know the age and sex of the patient. The fact that the trouble is confined to the legs suggests that the veins here are diseased—? varicose, ? compensatory to old phlegmasia alba dolens. The patient may have had a previous prolonged infectious condition like typhoid, peritonitis, or puerperal fever. A septic focus elsewhere will cause the infective condition in the diseased vessels. Blood diseases, such as a marked ordinary anaemia, pernicious anaemia, acholuric familial jaundice, must be excluded, as well as syphilis, gout, diabetes, low blood pressure, and nutritional debility. Occasionally subacute rheumatism is present, or the migratory phlebitis may be a manifestation of thrombo-angiitis obliterans, usually in males who smoke excessively. Should the patient be a female, then an abdominal tumour must be excluded as well as a urinary infection; to a much less extent this applies to the male. Rarely phlebitis migrans announces an undetected malignant disease in the stomach in the male, and in the uterus or cervix in the female. Thus a complete blood examination is essential. The common septic foci should be searched for—e.g., the nasal sinuses, the teeth (dead ones should be extracted without hesitation), the tonsils (a previous quinsy is a direct indication for tonsillectomy, as are tonsillar remnants), the gall-bladder, appendix, prostate, and cervix. (While the investigation is taking place, the tendency to clotting can be discouraged by injections or dicoumarol, if the attacks are inconveniently frequent.)

For treatment: if the veins are varicose, ligature and injection at the groin and ankle will settle the trouble. If the veins are not varicose, firm bandages (elastoplast if tolerated) will relieve the discomfort and discourage the phlebitis. During the painful and pyrexial stage the patient should rest in bed for two weeks with the application of glycerin and belladonna t.d.s. and firm bandages; getting up for toilet purposes is permissible. If there is a smart pyrexia or rigors, then a blood culture should be taken during the

exacerbation of temperature, and sulphathiazole (and possibly penicillin) may be needed. When the infected element is pronounced, there is, as your inquirer remarks, the danger of embolism. Reading aloud (unconscious breathing exercises) and gentle purposeful exercises are of assistance in keeping the circulation reasonably brisk, assisting repair, and discouraging further stasis and thrombosis. By mouth, an anticoagulant mixture such as pot. cit., gr. 20 to 30, spirit. ammon. aromat., minims 10 to 20, ammon. carb., gr. 3 to 6, glycerin, minims 20, aqua to 1/2 oz. given four-hourly by day and night is helpful. The diet must be well balanced.

Some American authorities advise the prompt ligature and injection of the termination of the internal saphenous vein at the saphenous opening; not only does it eliminate the danger of embolism, but also it cuts short the length of illness. This requires an expert opinion and technique, and the need to eliminate septic foci still remains.

Subacute Combined Degeneration of Cord

Q.—*What is the latest treatment for subacute combined degeneration of the cord associated with almost complete achlorhydria?*

A.—In subacute combined degeneration of the cord one would expect the achlorhydria to be complete, and the presence of free HCl even in small amounts would cast doubt on the diagnosis. An answer on prognosis and treatment was published on Aug. 7, 1943 (p. 190), and there is little fresh to add. In the early stages of treatment a full dose of liver extract—e.g., 4 c.cm. of one of the ordinary intramuscular extracts—should be injected three times a week. After a month or six weeks the number of injections may be reduced to one a week, but this should be continued for two or three years and only then reduced to one every three weeks. Treatment of this intensity should maintain the red cells above 5 million per c.mm.; if it does not, it should be supplemented by desiccated stomach or proteolysed liver by mouth, half an ounce t.d.s. If haemoglobin regeneration lags behind the red cells iron may be given—e.g., ferrous sulphate gr. 3, t.d.s., p.c. Vitamins B and C are advocated in some quarters, but are unnecessary if the patient is taking a good mixed diet. Physiotherapy is of value in severe cases, particularly re-education and persuasion to do more.

Faecoliths after Cholecystectomy

Q.—*A female aged 50 had a cholecystectomy 3 years ago. She has since complained of intermittent attacks of diarrhoea. During a recent attack she passed about ten stones, on which the pathologist's report is: "Reddish-brown stones weighing from 0.9 to 0.5 g., not easily crushed; small black portions visible when crushed; very little organic matter present; apparently a trace of fat only; consist almost entirely of ferric oxide (haematite), with some sulphide and traces of phosphate and calcium. Analysis: 69.7% iron (ferric oxide contains 69.9% iron)." She has been having no medicine containing iron, but admits to taking pure cod-liver oil for long periods. What might be the nature of the stones, the possibility of their being manufactured in the bowel, and the process by which they might be made?*

A.—Faecoliths are usually composed of calcium salts. It is hardly conceivable that amounts of iron of this order should be derived from the blood or tissues. It is little more credible that they should come from the food. The ferric oxide calculi are probably formed from ferric hydroxide, and a considerable amount of inorganic iron would seem to be necessary to produce this material in such quantity and purity. As the trouble followed a cholecystectomy, one's first thought would be that an instrument had been left behind and found its way into the bowel. Otherwise one would suspect that an inorganic preparation of iron was being taken by mouth. In any event the patient should be examined by *x* rays. A plain film should be taken, and if this does not solve the mystery a barium meal should be given in case there is a diverticulum in which ingested iron is accumulating.

Chronic Mastitis and Cancer

Q.—*Is chronic mastitis precancerous? Can you quote facts and figures to prove it? Should young women of 30 to 35 sacrifice both breasts, the scar of chronic mastitis, or should they remain under supervision? Is it ever cured, and by what means?*

A.—This collection of questions cannot be properly answered without defining chronic mastitis. Unfortunately the term is applied clinically to a variety of pathological states, including abnormal activity or involution determined by hormones, retention cysts, and the peculiar epithelial hyperplasia the relation of which to cancer was worked out by Cheatle. Of these, the last, a comparatively uncommon condition, is the only one which clearly leads up to carcinoma. Though it would be wrong to suppose that this is in fact the only link between mastitis and neoplasia, it is equally misleading to make the sweeping statement that chronic mastitis, in all its forms, is precancerous. There is no statistical proof that carcinoma occurs with greater frequency in breasts affected by chronic mastitis than in "normal" breasts. The only justification for mastectomy for chronic mastitis in young women is the persistence of pain and disease in the breast in spite of adequate conservative treatment, in the presence of a strong family history of carcinoma of the breast. Conservative treatment should include, first, attention to the general bodily and mental health; secondly, the administration of hormones in suitable cases; and also exposure to small doses of *x* rays, which may modify, without destroying, epithelial activity in the breast.

Angina and Coronary Occlusion

Q.—*At necropsy on a case of angina pectoris there is always found some degree of coronary sclerosis or occlusion. It would seem, therefore, that coronary occlusion is merely a more advanced (morbidly) state of angina pectoris. In fact it is taught that if angina pectoris pain persists over 15 minutes occlusion is probably present. Why is it, then, that nitrites are recommended for cases of angina pectoris but contraindicated in occlusion? Is one to infer that in the latter the general blood pressure is so low that a further lowering would endanger life? Is it not more logical to argue: (1) blood pressure in the first part of the aorta is always high enough to ensure that blood will flow through whatever part of the coronary circulation is still patent; (2) by lessening peripheral pressure we lessen the work of a heart only part of which is now functioning—and so—give nitrites? Would not the most rational treatment in occlusion appear to be to lay patient flat on back with the foot of the bed raised, and give nitrites (with, of course, morphine for pain)?*

A.—Nitrites relieve the pain of angina of effort, but do not relieve the pain of coronary occlusion. Naturally it is undesirable to lower still further the diminished blood pressure following coronary occlusion. The lowered pressure in the aorta probably renders the coronary circulation less efficient, and a drop in blood pressure is associated with a rise in rate, which increases the work of the heart. If shock and lowered blood pressure predominate the patient should lie flat, but dyspnoea and heart failure may make it necessary for him to sit up.

Unsatisfactory Marriage and Dipsomania

Q.—*How should I advise a husband aged 67 about his wife, aged 44, who is suffering from alcoholism associated with early menopausal symptoms? She has obviously developed a complex, since conjugal frigidity developed 11 years ago when their last child, a son, was born. The husband has since then developed a state which has now become one of complete sterility in spite of treatment. What form of "treatment" should be adopted in order to break his wife of the dipsomaniacal state?*

A.—This is a complex case deserving a treatise. I can only suggest the most probable causes, and treatment. The most likely cause of the wife's frigidity is a fear, not necessarily conscious, of getting another child; or she may have ceased to be in love with her husband from that date. It is not surprising, considering his age and her frigidity and lack of response, that he should become progressively impotent. Alcoholism in this case (as in all such cases) is usually an escape from her problem, internal and external; and is most commonly due to frustration. This may have to do with subconscious frustration from her frigidity and her inability to respond. But a great deal of what is put down to sexual frustration is really due to the feeling of lack of affection, especially in a woman, who, more than a man, desires to be loved. At the menopause especially a woman feels that her attraction is going, that her husband will not love her any more, which in this case is accentuated by her frigidity and her husband's consequent sterility. Since sex is the symbol of love she would be confirmed in her idea that she was no longer loved. She takes to alcohol as an escape. If such is the situation the husband would be well advised to give her a great deal more affection and even "fussing," quite apart from sex, to encourage in her the feeling that she is still "wanted"; and she would then have less desire to escape to alcohol.

This, however, is suggested only as a "first-aid" measure, and deals only with probable precipitating causes; but her alcoholism may be due to much deeper emotional disturbances. For instance, she may have married the older husband as a father substitute, and in the course of time grown out of this and now feels thwarted of a husband more her own age. In any case both her frigidity and her alcoholism, as well as desire to escape from life, are probably a regression to an infantile attitude of mind. Even so the demonstration of affection I suggest would not come amiss.

Chloroform in Midwifery

Q.—*I have used chloroform as an anaesthetic in upwards of 5,000 maternity cases, and have never seen any ill effects; but a great deal of discussion has taken place on its use in these cases, and I should be glad of an expert opinion.*

A.—The normal parturient woman stands all anaesthetics extremely well. Her mental approach is good and she welcomes the anaesthetist. Light anaesthesia suffices for the job; in fact, deep general anaesthesia is contraindicated, since it abolishes uterine contrac-

tions. The toxic effect of chloroform in these cases is negligible. In the toxaemias of pregnancy or in dehydration from prolonged vomiting the additive effects of even a little chloroform may gravely influence the existing liver dysfunction. In cases of obstructed labour anaesthesia may be prolonged and the cumulative effect of chloroform harmful. It is in institutions to which labour complications are sent that the ill effects, sometimes mortal effects, are seen. Chloroform is excellent in the straightforward case, but should be banned when complications exist.

Sterility after X-ray Therapy

Q.—*How long after the onset of an artificial menopause induced by x-ray or radium therapy may permanent sterility be assumed; and after how long a period of amenorrhoea occurring as a side-effect of x-ray or radium therapy may recovery of ovarian function be hoped for?*

A.—Permanent sterility cannot be assumed for certain after the induction of an artificial menopause with *x*-ray or radium therapy until three months after the completion of treatment. Patients should be warned of this, as the occurrence of pregnancy after a menopausal dose of radiotherapy is highly undesirable. After an artificial menopause it is usual for one, two, or occasionally three periods to occur, and these may be unusually heavy.

No definite answer can be given to the second part of the question, since so many factors are involved. These include the age of the patient, the dosage employed, and the amount of irradiation delivered to the ovaries. There is also considerable individual variation in the reaction of the ovaries to irradiation.

? Glomus Tumour

Q.—*A married woman aged 30, with one child aged 8, has suffered intermittently for the past 7 years with paroxysmal pain in the left leg over the internal malleolus. Formerly the attacks occurred at intervals of 4 to 6 months, but recently they have become more frequent. The patient describes the pain as "lightning" and as sometimes "shooting" along the tibia towards the knee-joint. When severe it causes her to sweat and vomit and leaves an ecchymosis over the internal malleolus. What are the diagnosis and treatment?*

A.—It is assumed that careful examination of the nervous system has revealed no evidence of organic disease in the region of the 4th lumbar segment of the cord or the saphenous nerve. Lightning pains always suggest tabes dorsalis, which in this patient would presumably be of the congenital variety. If these possibilities have been excluded, the most likely diagnosis is a glomus tumour or angioneuromyoma in the skin or subcutaneous tissue of the ankle. For a brief review of glomus tumours see the article by C. M. Ottley (*Brit. J. Surg.*, 1942, **29**, 387). Fifteen cases were well described by A. C. Lendrum and W. A. Mackey in the *B.M.J.* of Sept. 30, 1939 (p. 676), and the subject was commented on in an annotation in the same issue. Glomus tumours are liable to bleed if knocked or injured. Although they are often small, it should be possible to palpate the tumour, which is characteristically painful. The appropriate treatment is excision.

Penicillin for Syphilis

Q.—*Is there any evidence, and if so what, to demonstrate that Spirochaeta pallida is susceptible to the action of penicillin "in vitro"? How has the present recommended dosage of 2,400,000 units of penicillin for a case of early syphilis been arrived at? Has any literature been published on the treatment of early syphilis with penicillin?*

A.—The cultivation of *T. pallidum* is technically so difficult that proof of its susceptibility to penicillin by *in vitro* test is almost impracticable. The experimental basis for the present clinical study was the demonstration of the efficacy of penicillin in the treatment of syphilis in the rabbit. The present scale of dosage has been determined by clinical experiment. The lower the total dose (below 1,200,000 units, the largest amount used in the only extensive series hitherto published) the more frequently did serological tests become positive again some months after treatment. The original reports on these studies (*J. Amer. med. Ass.*, 1944, **126**, 63, 67, 73) were reviewed in a recent leading article in this *Journal* (Dec. 23, 1944, p. 821).

Goat's Milk for Infants

Q.—*What is the correct method of modifying goat's milk for feeding normal infants?*

A.—The composition of goat's milk is stated to be somewhat variable, but average figures show that the totals of the main constituents (protein, fat, and sugar) are essentially the same as those in cow's milk. Moreover, the amounts of caseinogen and of lact-albumin are also similar, and both milks have the same caloric value of 20 per ounce. It therefore follows that goat's milk should be modified exactly as cow's milk is modified. There is one variation, however, if it is desired to produce anything resembling breast milk—namely, that cow's milk cream must obviously not be used as an addition; instead, one of the synthetic fat emulsions should be used. But, in general, modern paediatric practice is not in favour of "humanized" milk mixtures. Therefore simple dilutions (2, 3, or 4 of milk to 1 of water) with addition of sugar are to be recommended. Dried goat's milk is also available and corresponds in composition to full-cream dried cow's milk. To sum up, goat's milk can be used exactly as cow's milk is used.

Attacks of Cyanosis and Giddiness

Q.—*A childless married woman aged 36 noticed 3 years ago, on movement of the arms or on bending, some blueness of the face, neck, and upper chest, with giddiness and black-outs—the latter particularly after stooping. Menstruation regular but scanty. Diagnosis of goitre has been made. X-ray examination of thorax shows nothing abnormal. E.C.G. shows slight tendency of the electrical axis of the heart to lie transversely, and negative T and P waves in Lead III. Blood pressure variable between 140/104 and 130/100. Arm band of sphygmomanometer causes slight cyanosis of arm. I should like help with prognosis and treatment. The patient is excitable, and when worried her face becomes puffy, but the blueness and distress come on only through exertion.*

A.—One would be chary about attributing this particular group of symptoms to a mental or functional disturbance, particularly in the absence of any history indicating that the attacks have a psychological cause or meaning. Evidence of venous obstruction from thrombosis of the superior vena cava or constrictive pericarditis should be looked for. Carotid-sinus syncope is another possibility, and the neck should be examined with the patient sitting to see if the carotid reflex is over-active. If no mental or psychological cause can be found, the patient should be given a favourable prognosis and treated by sedation with phenobarbitone gr. 1/2 to 1 b.d. Digitalis should be strictly avoided.

Hypervitaminosis D

Q.—*Is there any real danger of hypervitaminosis D? If I take large doses of vitamins A and D (5,400 i.u. of vitamin D per day) I seem able to do my work better.*

A.—There is a real danger of hypervitaminosis D. The symptoms of toxicity are an initial feeling of well-being and good appetite, followed by loss of appetite, nausea, vomiting, diarrhoea, frequency of urination, depression, headaches, sweating, and "pins and needles." Five deaths due to overdosage with vitamin D have been reported in the literature. Necropsy showed calcification of the arteries, cardiac muscle, kidneys, bronchi, and stomach. Excessive doses of vitamin D mobilize calcium and phosphorus so that soft tissues tend to become calcified. Massive single doses appear to do no harm, but the continual use of large doses produces toxic effects. It is difficult to state the dose which will produce toxic effects if taken continuously, as personal sensitiveness seems to vary. 10,000 i.u. per lb. of body weight is stated to be toxic, although doses as low as 500 i.u. per lb. of body weight have produced toxic effects, and even 200 i.u. per lb. is said to have resulted in the death of a child. In an adult 5,400 i.u. daily is unlikely to do any harm, although there is no point in taking such a large dose. 1,000 i.u. daily is ample even in pregnancy and lactation.

INCOME TAX

Assistant formerly Resident in Eire

H. O. has been employed in England as an assistant for the past six months, having come to this country from Eire in May, 1944. Is he liable to deduction of tax under the "pay-as-you-earn" system?

*** Yes; his salary as an assistant ranks as an emolument assessable under the rules of Schedule E, and therefore is brought within the "pay-as-you-earn" system.

Part Use of Residence for Professional Purposes

F. G. is in general practice and has a surgery about half a mile from his residence. The residence "is used quite a lot for professional purposes"—e.g., emergency cases outside surgery hours, other cases by appointment, etc. Hitherto a deduction has been allowed representing roughly half the cost of running the residence, and the inspector of taxes proposes to reduce the allowance drastically.

*** The deductions in the past have represented almost the maximum allowance made when the main surgery is on the residential premises and seems clearly to have been excessive. On the other hand, it may be that the new basis suggested (1/6th of rent, rates, etc., and £50 for part cost of domestic service) is not adequate—it depends on the actual facts of the case. We cannot advise our correspondent to carry his objection to an appeal to the Commissioners, but personal discussion with the inspector might induce him to make some increase in the deduction he proposes—e.g., 1/4th instead of 1/6th.

Payments for "Sickness Insurance"

"Pi" has in the past treated payments for insurance against illness as professional expenses. The inspector proposes to refuse the deductions in future and to correct past assessments.

*** Such payments are not properly regarded as "wholly and exclusively . . . expended for the purposes of the . . . profession," neither do they rank for the special "Life Insurance" relief. The inspector is therefore acting within his rights. On the other hand, sums *received* in respect of the insurance are not taxable—but "Pi" has not received any such benefits in recent years.

Assistant: Whether Expense Allowable

M. M., a married woman, is employed as an assistant. If a plate is put up outside her residence, "By Appointment Only," would that justify her in claiming as an expense part of the remuneration payable to her housekeeper? There is one child to be considered.

*** M. M. would have to establish that the expense was incurred "solely, exclusively, and necessarily" in the performance of her duties—including the fact that her contract of employment necessitated her seeing patients at her residence. If that can be established, she would be entitled to deduct some part of the housekeeper's remuneration—probably determined by a proportion of the whole time spent on dealing with callers.

LETTERS, NOTES, ETC.

Flea-bites and Ingrowing Toenails

Dr. E. HAYLING COLEMAN (Wolverhampton) writes: I am very interested in the query about flea-bites in the *Journal* of Oct. 14, p. 520. I much sympathize with the sufferer, for I have "been there." Before the rebuilding of our out-patient department I rarely came home from out-patients without one of these pests; also after attending medical examinations of recruits during the last war. They raised large urticarial wheals over considerable areas. After trying many things I found a panacea—powdered flowers of sulphur sprinkled inside my underclothing.

With regard to ingrowing toenails, I would mention a simple remedy, usually effective. Pack some powdered lead nitrate down between the side of the nail and the skin. Cover with adhesive plaster to keep it in place. In a few days scrape away the dead skin and re-pack. Usually a few applications effect a cure. Of course the sides of the nail should not be cut beyond the level of the toe. Another method is to cut a V from the *side* of the nail. This takes 20 minutes or more and needs care, but it should cause no pain and is usually very successful. The V is about 1/8 in. wide at the bottom, tapering slowly upwards nearly to the root of the nail. Both these methods are simple and do not take much time.

Promotion in P.O.W. Camps

"REPATRIATE" writes: The paragraph bearing this title in "Medical Notes in Parliament" (Jan. 13, p. 65) gives a completely erroneous impression. The only promotion applicable to officers of the R.A.M.C. and A.D.C. is that of lieutenant to captain, and a large number held the latter rank before captivity. The statement hinges on the use of the word "normal." Surely the conditions are most "abnormal," and the position of M.O.'s, dental officers, and chaplains is so vastly different from other officer prisoners of war as to justify abnormal opportunities for promotion being instituted. A statement of this kind only illustrates official disinterest or ignorance of the work M.O.s and D.O.s are doing in captivity.

Translation, Please

Dr. JAMES BURNET (Edinburgh) writes: The difficulty encountered in translating the words "anthrax" and "carbuncle" is due to the fact that in some languages the same word is used indifferently for both conditions. The following notes may prove helpful to your correspondent (Jan. 13, p. 70):

Anthrax.—French: *pustule maligne* (also *anthrax*). Spanish: *ántrax*. German: *Milzbrand* (malignant pustule); *Milzbrandfieber* (the disease itself). Italian: *antrace*.

Carbuncle.—French: *charbon*. Spanish: *carbunclo*. German: *Karbunkel*. This word is sometimes used for "malignant pustule," but the Hun distinguishes "*Karbunkel bösartiger*" (malignant pustule) and *K. gutartiger* (carbuncle). Italian: *carbonchio*.

Pethidine for Asthma

Dr. J. HEPBURN (Bedfont) writes: As one who for the past 7 months has personally used pethidine as a help for asthma, perhaps my observations may be of interest. I started with 25 mg. by injection at night—increased soon to 50 mg.; I did this mainly to secure a night's sleep. I soon found that it was a nerve sedative and for various reasons I took extra doses, and now have an average daily amount of 300 mg. Small doses of 25 or 35 mg. act promptly and efficaciously in the morning, and the effects—sedative and antispasmodic—last usually for 4 to 5 hours. Thereafter, 35 or 50 mg. are necessary at more frequent intervals to procure the same results. I have experimented with different amounts and have taken 100 mg. at a dose without deleterious effects. With these bigger doses there is an accentuation of the heart beats and an evanescent light-headedness which soon wear off. I think it unlikely that poisonous doses can be achieved for the simple reason that the atropine-like factor inherent in the composition makes the mouth and throat so dry that further medication is repulsive.

The general claims made on behalf of pethidine are generally correct so far as obstetric, post-operative, and chronic painful conditions are concerned; especially in prostatic enlargement with nocturnal frequency I find it, in doses of 75 to 100 mg., excellent, and the dose need not be increased. There is no doubt that habit formation is more likely if administered parenterally than if taken in tablet form. As regards asthma and tracheitis and mild bronchial catarrh, it certainly is of great help, especially when, as in my own case when holidays and rest are impossible, work has to be done in spite of the infirmity. The larger doses of 100 to 150 mg. certainly give a transient feeling of euphoria, and the inclination is always there to resort to the larger dosage in times of excessive stress and mental and physical strain. It is difficult for me to understand how the symptoms of Dr. Bedo Hobbs's case (Sept. 2, p. 328) can be attributed solely to the pethidine. This drug is rapidly destroyed in the liver and is non-cumulative. The doses his patient took—400 mg. daily for 3 days—should only have had the effect of inducing sleep. Much larger doses have been given—650 mg. in 24 hours—and I myself have taken 400 mg. daily with only the effect of drowsiness and a very dry mouth and pharynx. Still, I do feel that patients may be inclined to take too much, and addiction is a sequela which should be guarded against.

In the treatment of asthma, if addiction be observed, it should be insisted upon that the dose should be kept to the minimum amount which gives relief and comfort; also the oral route should be used. I do not yet know if, in time, it will effect a cure, by virtue of its sedative effect on the central nervous system and its relaxation effects on the unstriped muscle of the bronchi, with, of course, the atropine-like effect of limiting and drying up nasal and bronchial secretions. But, having tried everything already known for asthma and finding that adrenaline causes disturbing cardiac and nervous effects—tremors, etc.—I feel that pethidine is of definite use in cases of asthma which have a psychological factor, and which are associated with bronchial and upper respiratory tract catarrh. I find also that cigarette smoking, whether from the mechanical irritation of the mucosae or from the absorption of the pyridine substances in the smoke, is a deterrent to the best results of the administration of the drug. The drowsy effects from a large dose do not last long, and I have on several occasions had to go to an emergency call in the middle of the night and found no difficulty in collecting all my faculties and in being mentally efficient. Definitely pethidine has its place in the treatment of asthma—especially of the type I have described—but its effects should be watched and regulated.

The Albino and the Swallow

S. W. S. writes under this heading: So far as it was possible to know, the two being related were yet unrelated. The elder of the two sons of a family, full brothers, both albinos, was the more devoid of pigment: his hair was white, his eyes pink; he had a constant nystagmus and a rapid nictitation, and was of somewhat subnormal mental calibre, being withal a silent man. His age was 30 when I first saw him: he was a cellarman, his day's work being carried on under artificial light, well away from sunlight. This albino had found this habit worth cultivating, because thereby he enjoyed the privilege of drinking without paying. In return for a free bottle of ale he could perform thuswise: he stood at the edge of a circle of awed admirers, bent his head backwards till mouth and gullet were aligned, then with the bottle-neck to his mouth, tilted the full bottle upright and swallowed the contents without once going through the act of deglutition. His pomum adami, in its immobility, was watched intently by the onlookers to confirm the fact. At decent intervals this profitable trick was repeated—as often as the generosity of others would extend to the necessary pint, or even quart, of ale. The performance seemed worthier of applause than sword-swallowing. Is the habit one that can be acquired? It is certainly an excessively rare accomplishment. I ask the question, of course, not to emulate, but purely out of curiosity, and mention the instance from greater interest after coming across some reference to the practice in the Acharnians (Aristophanes) in the admirable Hookham Frere translation: "I quaffed it off within my breath; I gulped it in a guggle." A footnote there makes reference to this as "drinking without deglutition; still practised in Catalonia—the Thracian Amystis."